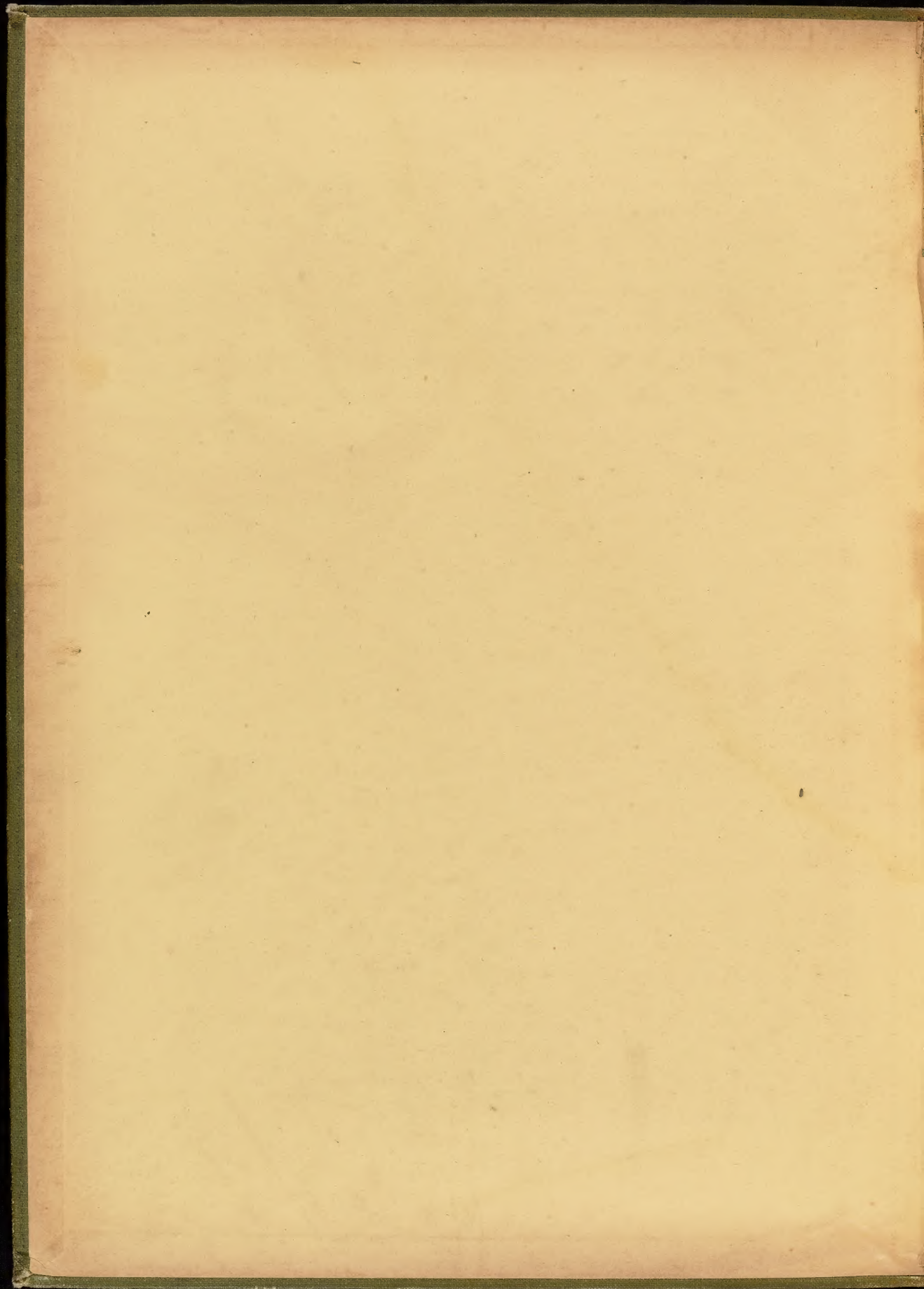
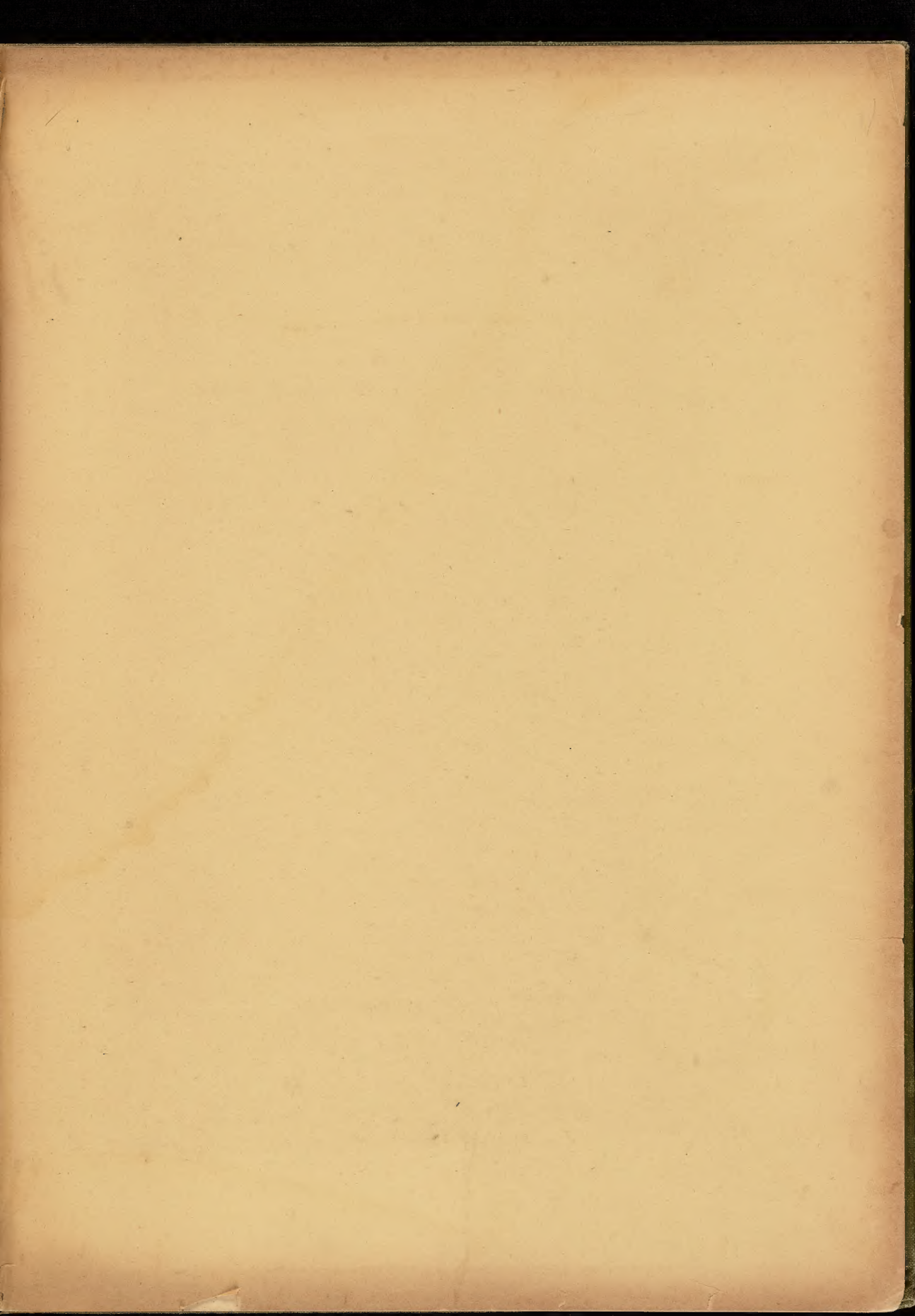


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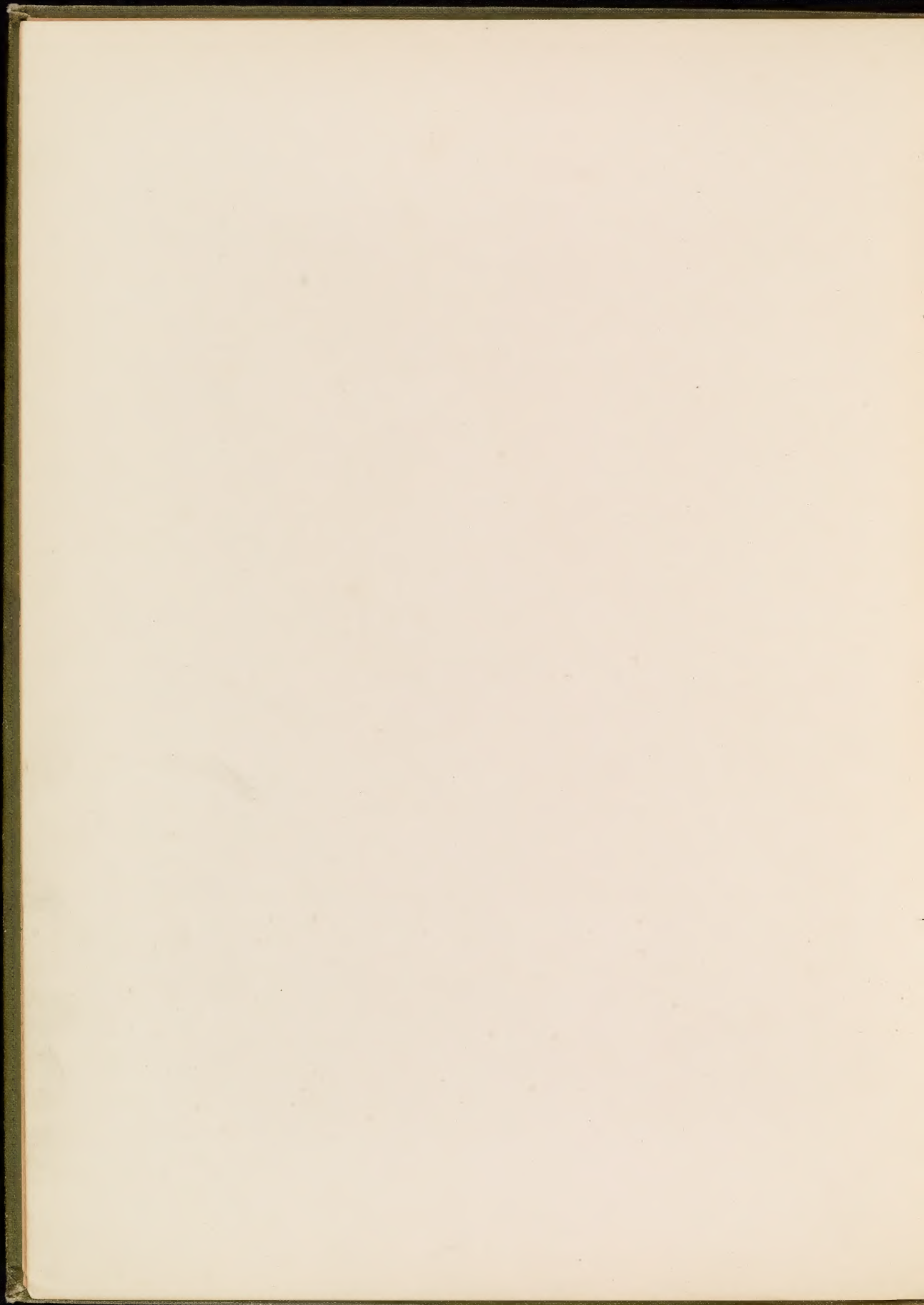
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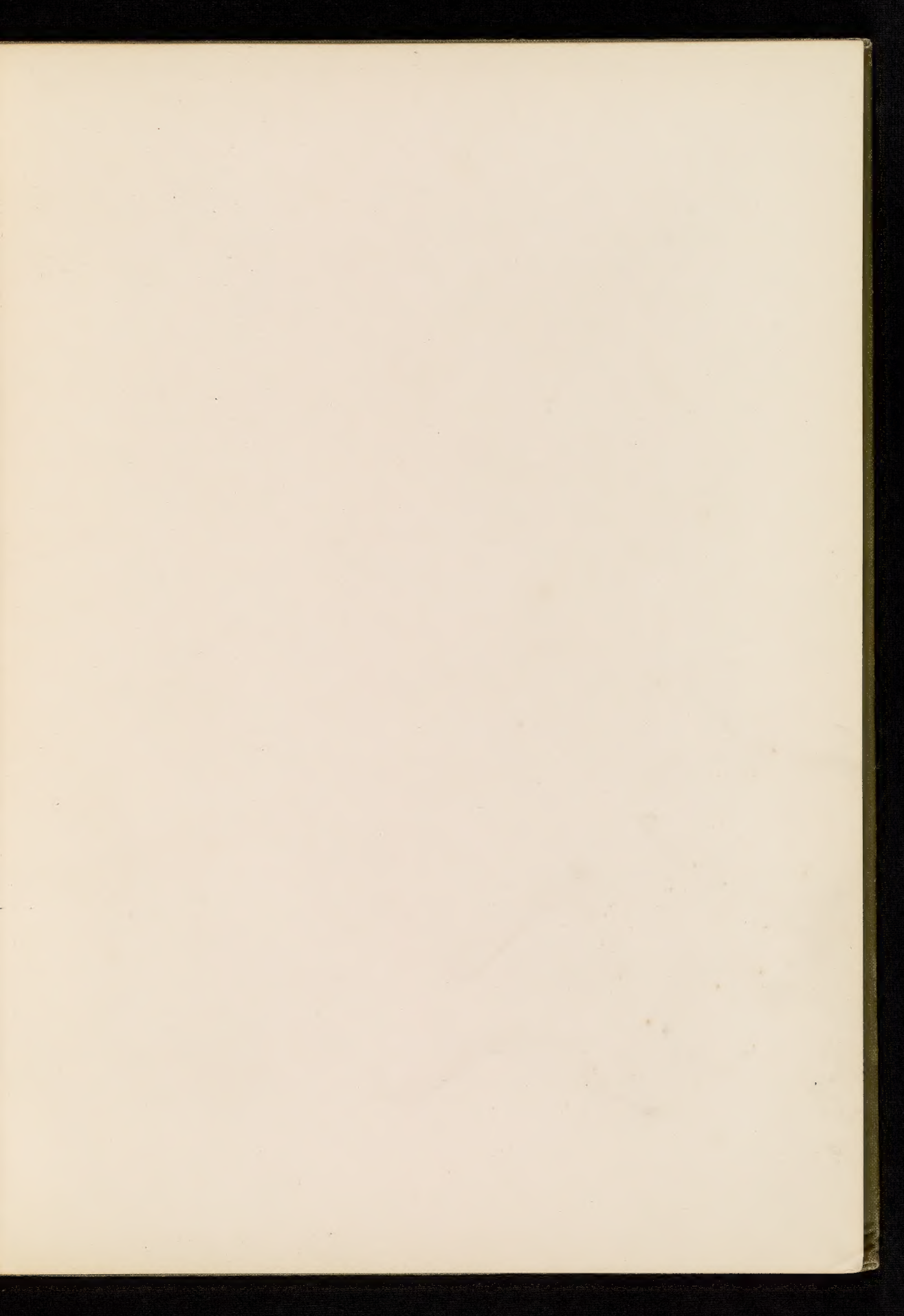
IN URBAN DISTRICTS





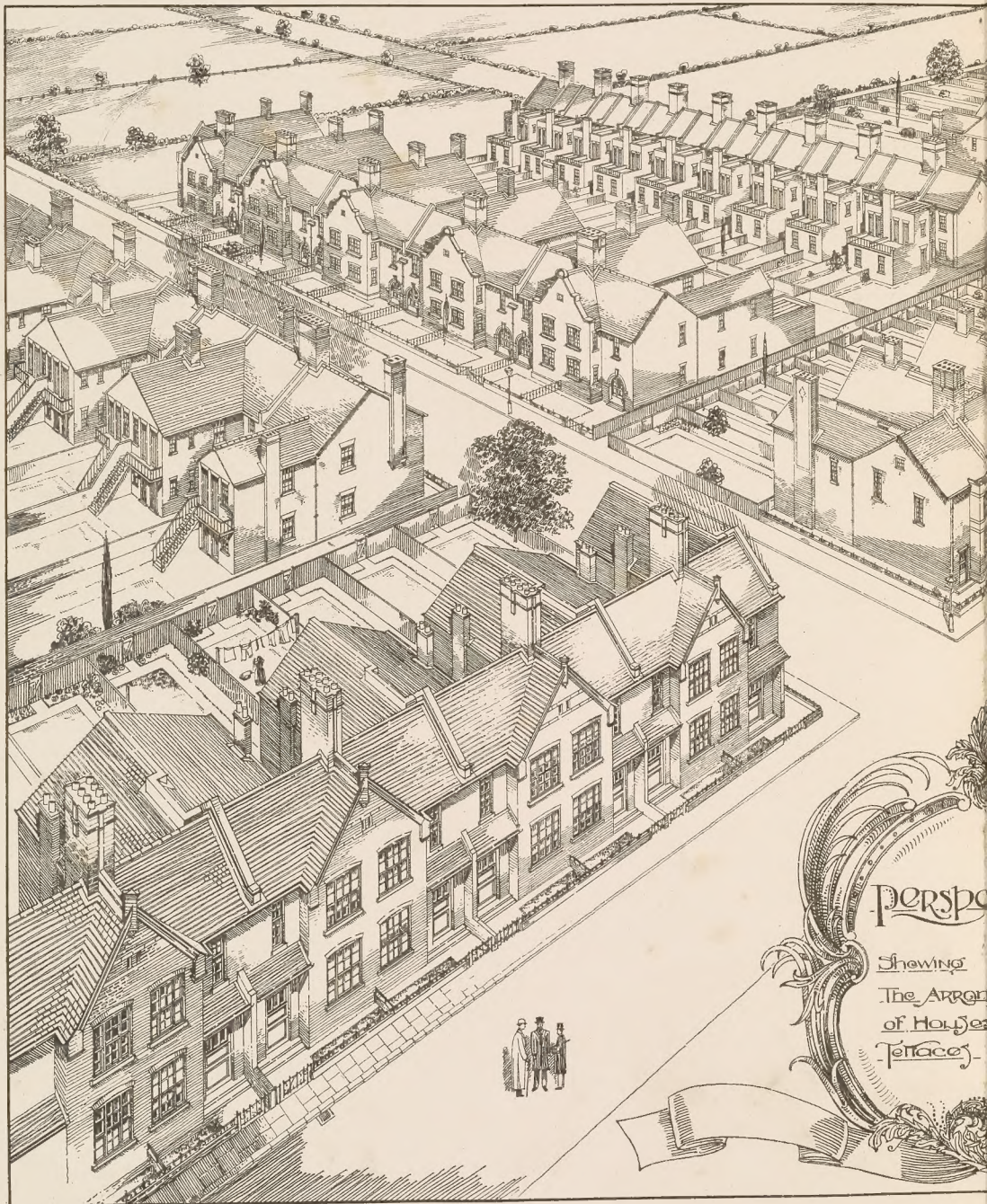
HOUSES FOR THE WORKING CLASSES IN
URBAN DISTRICTS.





H.2.

H.2.



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Showing
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Terrace.

E.3.

D.3.

G.5.

B.5.

F.2.

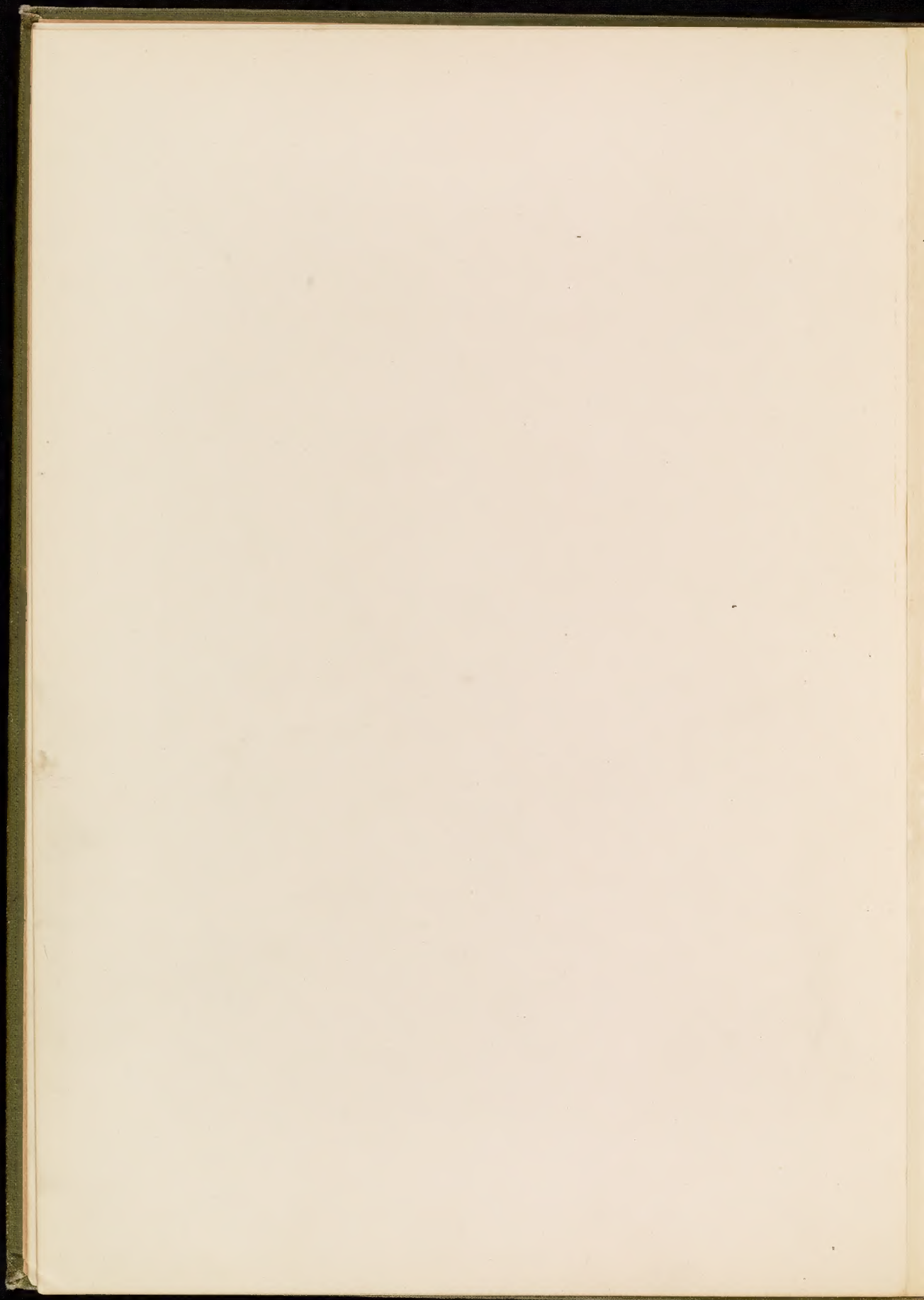
A.5.

G.5.



C.1.

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HOUSES FOR THE WORKING CLASSES IN URBAN DISTRICTS.

COMPRISING 30 TYPICAL AND IMPROVED PLANS
ARRANGED IN GROUPS, WITH ELEVATIONS FOR EACH,
AND BLOCK PLANS, &c.

ALSO

INTRODUCTORY AND DESCRIPTIVE TEXT, GENERAL NOTES ON PLANNING,
TABLES GIVING SIZES OF ROOMS, CUBIC CONTENTS, COST, &c.

*WITH AN APPENDIX GIVING EXTRACTS FROM THE LOCAL GOVERNMENT MODEL, AND
LONDON COUNTY COUNCIL BYELAWS.*

BY

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HOUSES FOR THE WORKING CLASSES IN URBAN DISTRICTS.

INTRODUCTION.

THESE Designs for small Houses have been prepared to enable private individuals and public bodies to compare and select the Plan, or combination of Plans, most suitable for particular requirements and localities. For this purpose the Plans are conveniently arranged in groups with descriptive letterpress. Tables giving detailed particulars of each design are included, together with various information concerning the sanitary requirements of the present day. At the same time an endeavour has been made to introduce some original ideas and improvements into this class of dwelling, where the want of thought displayed in the planning is frequently conspicuous.

The scarcity of house accommodation and the prevalence of overcrowding in the vicinity of the Metropolis and elsewhere has caused the Housing question to be much discussed of late. Its importance will perhaps be best appreciated by reflecting upon the number of people whose moral and physical welfare it concerns; the attention given to the subject by statesmen of all parties and the Press; the legislation empowering Sanitary Authorities to build cottages; and the recent Act facilitating the acquisition of small houses by their occupants.

It is not proposed to touch upon the political side of the question, but it may not be out of place to briefly discuss some of the practical difficulties of the subject from the Architect's point of view, and some of the efforts that have been made in the direction of housing the working classes by private individuals and public bodies.

The difficulties of housing the poor at rents they can afford, and at the same time to secure a fair interest on the capital outlay, have lately been aggravated by the large increase in the cost of building. This rise in the cost of building can be traced to (1) The high rate of wages paid in the building trades. (2) The advance in the price of materials. (3) The adoption of more stringent building regulations by Local Sanitary Authorities.

Of the total cost of a cottage more than 50 per cent. is absorbed by the one item "Labour," hence the price of labour is all important, especially so perhaps in the case of

the class of houses illustrated, as the use of machinery is very limited in their construction, and does not materially reduce its cost.

The advance in the price of building materials may be only a temporary difficulty, but this again is influenced by the cost of labour.

The building regulations now usually adopted by Sanitary Authorities in Urban and in many Rural Districts, are based upon the model byelaws issued by the Local Government Board, which, however, differ in detail, and in their administration, in every district. This lack of uniformity is a difficulty which architects and builders have constantly to contend with, and causes much friction and inconvenience. No exception is taken to the byelaws where they tend to check unsound building. In the case, however, of such buildings as those now under consideration they might be relaxed to some extent; the regulations often enforced for the separation of buildings being unnecessarily stringent, and considerably increasing the cost of building. Other factors which add to the difficulties of the problem are the increase of the rates in Urban Districts, which in reality the poor pay in the form of rent, and the enhanced value of land in these localities.

One of two methods has generally been adopted for housing the working classes in Urban Districts. (1) The building of blocks of tenement houses in the more or less central districts of large towns. (2) The erection of cottages in suburban districts to accommodate one or two families.

Of the two plans the latter is for many reasons to be preferred. House accommodation must be provided for certain classes in the vicinity of their employment, and when this is in the neighbourhood of large towns, it necessarily takes the form of blocks of tenement houses, as the price of land prohibits any other form of dwellings. But with the increased facilities for travelling, it is no longer necessary for the bulk of the working classes to be housed in the immediate neighbourhood of their work, and it seems only reasonable to suppose that as these facilities improve so will the demand for small houses in suburban districts increase. It is thought that the Plans illustrated in this volume comprise those types of dwellings best suited for housing the working classes and most in accordance with their own views on the subject.

Without dwelling at greater length on the many points that can be raised in discussing the housing question it should be explained, that the portion of the problem it is hoped to assist in solving is that of providing the poorer classes with the best and most suitable housing accommodation possible, in return for a rent they can afford to pay; thereby enabling them to live up to a proper standard of comfort and decency, to the mutual benefit of both landlord and tenant.

DISPOSITION AND EXTERNAL TREATMENT OF SMALL HOUSES.

IN considering the disposition of these houses on an estate, it should be noted that the plans illustrated are confined to two-storey dwellings suitable for Urban Districts, so that the question of detached houses is not discussed.

Semi-detached houses are also considered undesirable for this class of residence, since the area of the external walls is nearly double that of a similar house in a terrace, and although the frontage is necessarily increased, the passage-way between the block is seldom adequate for lighting purposes, further, the houses are deprived of the support of another house on one side—an important consideration in some cases.

An arrangement which has been adopted with a superior class of Terrace House might well be tried by public bodies or by private owners of large estates for smaller houses. This provides each house with a small backyard only, the land at the rear—which in the ordinary way would be called a garden—forming a large open space, common to all the residents of adjoining terraces. Assuming 30' . 0" were cut off the ordinary back gardens of two terraces, this would give an open space 60' . 0" wide, extending their entire length. Access to the rear of all the houses would be obtained by means of a private road for the collection of dust, delivery of fuel, etc.; at the same time an excellent playground would be provided for the children of the adjoining houses, which would tend to stop the dangerous practice of allowing them to play in the streets.

A sewer could be taken down the centre, thus avoiding the necessity of taking the drains under each house to the main road. The cost of making a private roadway would be counterbalanced by the saving in the drainage and fencing. The only loss of frontage involved by this arrangement would be occasioned by the provision of a cartway at one end, and as a narrower passage-way is very often insisted upon by local authorities under ordinary circumstances, this would not be a considerable loss. An attempt to illustrate this idea is made in the Frontispiece.

The minimum width required by local authorities for roadways is usually sufficient to accommodate the traffic. A roadway of this width is much improved by the setting back of the building line on both sides, which gives the effect and many of the advantages of a wider thoroughfare at less cost than would be incurred by the actual widening. The length of a road should not be prolonged beyond 300 yards without a cross road.

The prevailing external features of the typical house of this class, which may be seen in any suburban district, are too well known to call for any lengthy comment. It may be remarked, however, that the common practice of those who are responsible for their architectural treatment, is to ignore the more legitimate means of obtaining a pleasing exterior, and to rely upon a lavish use of Bath stone embellished with carving of a peculiarly offensive character; and from an æsthetic standpoint it is difficult to find one redeeming feature in the treatment of this class of dwelling.

In designing the elevations herewith illustrated, the element of cost has been carefully considered, and it should be noted that no particularly skilled labour would be involved in

carrying out the buildings as drawn. They are designed for certain plans, and illustrate the use of the various materials to be met with in different localities, with variations in treatment of the more important features.

Each drawing illustrates two or more houses. It will be noticed that in some cases they have unequal frontages, this being due to the give-and-take arrangement, which permits the placing of two bedrooms in the front of every alternate house. No attempt has been made to disguise this in the elevations, these differences being regarded as a much-desired element of variety in the treatment of long rows of small houses.

The materials suggested to be used in the elevations for the walling are stone, brickwork finished, with a struck joint, and brickwork or concrete finished with rough cast, for the roof slates (preferably green) and tiles. Rough cast, as an external finish to the walls of this class of house, is strongly to be recommended, both from æsthetic and utilitarian standpoints. The external walls, when built with bricks, are usually only one brick thick, so that the addition of the coating of rough cast renders them more weather-proof, and keeps the houses both cooler in summer and warmer in winter. In districts where good bricks and good bricklayers are scarce, it is especially useful. The use of concrete as a substitute for brickwork is seldom adopted; in neighbourhoods where the materials are easily procured, a considerable saving in the cost of small houses could be effected by its use, more especially when a large number of houses are built on the same plan.

In considering the particular features of each design it may be mentioned that the difficulty of producing a pleasing elevation is increased by some of the requirements of the Local Government Byelaws, which are now adopted in most Urban Districts; the most troublesome being the important one of carrying the party-wall through the roof to a certain height above the slates. This, as may be seen by a reference to the Frontispiece, cuts up the roof and destroys any effect of breadth in the elevations, and at the same time adds to the difficulty and expense of making the roofs water-tight. It is much to be desired that the practice of stopping the party-wall under the slates will be permitted in every district when the Byelaws are revised.

GENERAL REMARKS ON PLANNING.

THE plans here illustrated are divided into Groups A, B, C, D, E, F, G, H and J. Groups A to E comprise the Single Tenement Houses, and Groups F to J those built to accommodate two families. The frontages for each house vary from 11' . 6" to 20' . 0", the former being taken as a minimum for any form of house, with a front room not less than 9' . 0" wide. This forms a minimum standard width for all parlours and living rooms throughout these plans. A minimum and a desirable size for all rooms in these houses can be conveniently given in a tabular form, which will be of assistance both in the preparation and criticism of plans.

ROOM.	WIDTH.		HEIGHT.		SUPERFICIAL AREA.		CUBICAL CONTENTS.	
	Minimum.	Desirable.	Minimum.	Desirable.	Minimum.	Desirable.	Minimum.	Desirable.
Parlour . . .	9' . 0"	11' . 0"	8' . 6"	9' . 0"	100' . 0"	130' . 0"	850' . 0"	1170' . 0"
Living Room . .	9' . 0"	12' . 0"	8' . 6"	9' . 0"	100' . 0"	150' . 0"	850' . 0"	1350' . 0"
Bedroom 1 (Double).	9' . 0"	12' . 0"	8' . 6"	9' . 0"	100' . 0"	150' . 0"	850' . 0"	1350' . 0"
„ 2 (Single).	5' . 6"	8' . 6"	8' . 6"	9' . 0"	60' . 0"	100' . 0"	510' . 0"	900' . 0"
„ 3 (Single).	5' . 6"	6' . 0"	8' . 6"	9' . 0"	50' . 0"	60' . 0"	425' . 0"	540' . 0"

Some of the dimensions may be considered too small, but it is useless to give or consider these without regard for the present cost of materials, labour, and land. Any economy that could be effected by the introduction of new and cheaper materials would at once enable what may now be regarded as a minimum size to more nearly approach the desirable. In the case of bedrooms it will be found that if the position of door, window, fireplace, and bed be carefully considered, a room of a certain size will be quite equal in accommodation to one a few feet larger, where these points have not received the same amount of attention. And in considering the following plans the sizes of the rooms generally should be taken as the minimum for the particular frontages to which they apply.

The plans of each group have been drawn as far as possible to the same general dimensions, so that, although differing in the arrangement of rooms, the superficial area, with the cubical contents of several plans in a group, will be almost identical.

For the sake of variety, several types of bay windows are shown, the square and the canted. The different arrangement of these and the outbuildings can in most cases be transposed from one plan to another as may be desired.

In preparing these plans the chief considerations have been economy and convenience, by making the rooms as wide as possible on such narrow frontages, by keeping fireplace projections off party walls; to gain a little space in the entrance passage when opportunities allow; to arrange direct access from the street to the space for coals without passing through a room; and to provide a ventilated place for keeping food. On the first floor, to arrange for not less than 3 bedrooms; to give the principal rooms the advantage of the best prospect and lighting, and at the same time save in the cost of building by coupling the bay windows, etc. Minor considerations have been the best arrangement of doors, windows, fireplaces, and the position of beds and cupboards.

The detailed requirements to be met in planning this class of house are as follows :—

The aspect in a small degree only concerns houses that can only face towards the back and Aspect. front; but two points to be remembered are that bay windows frequently improve the aspect of a

room by admitting the sun where it would not otherwise penetrate, and that the space provided for keeping food should be protected from the sun.

The Forecourt.

The forecourt, as the space between the front of the house and the public footway is generally termed, considerably improves the appearance of a road with terraces of houses on each side. It should not be less than 6' . 0" in depth from the front boundary of site to the main wall of house, and, when the depth of the site permits, can with advantage be made as much as 20' . 0". The footway across the forecourt to the entrance door should be paved. It is also better to extend the paving throughout the forecourt when this does not exceed 6' . 0" in depth, as it is very improbable that any plant could be persuaded to grow in such a position.

Entrance Porch.

An entrance porch, which is a desirable feature, can frequently be economically provided, and tends to add to the warmth and comfort of the house. It should be paved with tiles or other material, so that it can be easily cleaned.

Entrance Passage.

The entrance passage must of necessity be narrow, but should not be less than 2' . 9" clear in width, should be made as light as possible, either by a window, a fanlight over the external door, or by glazed panels in the door. Any opportunity of gaining extra space should be taken advantage of, for standing furniture or perhaps a perambulator or a bicycle.

Staircases.

Staircases are only too frequently dark, steep, and dangerous—bad enough features—but probably not a serious inconvenience to people who are accustomed to them. The staircases in these small houses can only be lighted and ventilated, at the first floor level, from the roof. On the ground floor, light can generally be obtained by glazed panels in the front door and a ventilating fanlight over. It is desirable that there should be access to the staircase without passing through a room. Throughout these plans an 8" tread—which with the nosing is equivalent to 9"—is taken as a minimum for all staircases, and 8" as a maximum depth for risers. Where a staircase is placed between two walls a handrail should be fixed on one side. Every advantage should be taken of the space under a staircase for storing coals, etc.

Doors.

In small rooms the position of and the manner in which the doors are hung is very important. It is also advisable not to make them too large or too small. Doors 2' . 6" to 2' . 9" wide are suggested for parlour and living rooms, and 2' . 6" for bedrooms. It may be noted that a railway carriage door, through which at some time or other every one passes, is only about 1' . 11" wide. Of course, in the door of a house, furniture has to be considered, but in the houses here referred to this should not be large.

Glazed Doors.

Glazed doors and fanlights are useful where it is sometimes impossible to find space for both a window and a door. The fanlight may with advantage be made to open for ventilation.

Windows.

Windows must have a minimum total area measured clear of sashes equal to one-tenth of the floor area of the room, one half of which must be made to open. It is always advisable to keep the upper part of windows within one foot of the ceiling of a room. In this class of house the double hung sash windows are generally preferable to casements, and these should be made with a deep bead fixed to the oak cill, so that the lower sash can be raised to admit fresh air at the level of the meeting rail without causing a draught from the bottom of the window. In cases where the living room is placed at the back of the dwelling French casements form a convenient means of access to the gardens.

Bay Windows.

Apparently no house of this class can be considered complete without a bay window. This can be either of the "square" or "canted" type. The former has the advantage of being more economical by being coupled to that of the next house, and gives slightly more space, whereas the canted is better adapted for catching the sun, and gives a greater variety of prospect. But in

houses on these narrow frontages this latter form has the drawback of the side windows overlooking those immediately adjoining.

In the small rooms of these houses the size and position of the fireplaces is very important. **Fireplaces.** They should be no larger than is absolutely necessary, and the position such that it does not encroach upon the floor space of the room. With the grates that are now in common use an 18" opening is quite sufficient for any parlour or bedroom, and this in some cases can be reduced to 12". For a living room to be fitted with a range the width of the opening should not be less than 2' . 6". In the scullery a suitable range requires a minimum opening of 2' . 0".

The use of portable ranges is becoming more general, and where there is a chimney opening **Ranges.** in the sculleries the stove can be removed from the living room during the summer months and the cooking done in the scullery.

With reference to the position of fireplaces, it is a mistake to place them in the centre of the back and front rooms, for symmetrical reasons only, as is so frequently done. In many of the following plans they are shown at the angles to avoid the projection of chimney breasts into the room, and in other cases out of the centre to give room for a dresser or more space for a bed, as the case may be.

It is not necessary for the flues in these houses to be more than 9" x 9".

Flues.

The parlour, as it is generally called, corresponds to the drawing-room in larger houses, and **The Parlour.** is usually improved by the addition of a bay window. Its approach from the front door should be as direct as possible.

The living room is the dining-room and kitchen combined, and should therefore be the largest **The Living Room.** room in the dwelling. The fireplace and dresser should be so placed as to take as little off the width of the room as possible. The comfort of this room can be improved by limiting the number of doors opening from it. Frequently one finds as many as 3 or 4 doors in a room of this description. Care should also be taken in the larger dwellings to avoid making this a passage room whenever possible; but it is generally necessary to pass through it to gain access to the scullery, garden, or yard, and sometimes to the staircase and cupboard for coals. A minimum size to allow for a dresser may be taken to be 3' . 6" long by 1' . 3" wide.

The scullery is essentially for washing purposes, and the floor should therefore be paved. **The Scullery.** It is fitted with a sink and copper and sometimes a small range or gas stove, which latter is useful, since it allows cooking to be done here, if desired. There should be an external door giving access to the yard or garden. Portable iron coppers are sometimes desirable instead of the ordinary copper set in brickwork.

A large space for keeping food is not required; but whether it be called a pantry or a cupboard **Pantry.** it should be ventilated and protected from the sun. The necessary ventilation may be obtained by means of a window or grating. It is frequently found next to the W.C., which is not an ideal arrangement, though often difficult to avoid; but at the same time if the division wall between these two places is properly built and continued up through the ceiling to the under side of roof or floor over, and the pantry and W.C. are properly ceiled, no ill results are likely to arise.

Since the carrying of coals is a constant source of dirt, the access from the street to the place **Coals.** where they are kept should be as direct as possible. One ton of coals occupies only about 45 cubic feet, and since space is not required for more than 2 or 3 cwt., in the smaller dwellings a place 3' x 3' is sufficiently large for coal storage.

A small portable galvanized iron dustbin is found to be the most efficient receptacle for **Dustbin.** houses of this class.

W.C.

There is a general tendency to make the W.C. absurdly small. It is well to note that the minimum size should be 4' . 6" x 2' . 9". It is very desirable in these small houses that the W.C. should be entered from the yard, and not from inside.

Bedrooms.

Bedrooms should be at least three in number, where a family has to be accommodated, in order to allow a proper division of the sexes. They should be arranged so as to avoid the necessity of passing through one room to gain access to another. If possible each room should have a fireplace; if this is not possible, a ventilating grating or flue must be provided, with a superficial area of not less than 100". The rooms being necessarily small, it is very important to consider the position of the bed, as this frequently influences that of the door, window, and fireplace.

Bathroom.

An attempt should be made to provide a bath in every house, however small. In the larger plans illustrated a small bathroom is provided. In the smaller houses the following arrangement is suggested as the most economical:—

The bath is placed about 18" below the floor of the scullery (see Plate 20), and covered with a lifting flap about 8" above the floor. The cold supply can be arranged economically from the supply to the sink, the waste discharging over the sink gully, and the hot water obtained from the copper. This method, it will be observed, does not encroach on the floor space of the scullery nor add to the cost of water supply, and for these reasons is to be preferred to an alternative arrangement of placing it on the floor of the living room or scullery with a hinged cover forming a seat or table. Care must be taken that foul water cannot accumulate under the bath; for this reason it is advantageous to raise it above the scullery floor, as shown. Should any overflow from the sink or elsewhere find its way into the bath, it would, of course, easily escape through the waste.

In the case of the Double Tenement Houses the bath could be sunk in the scullery on the first floor in a similar way.

Ventilation.

Efforts in the direction of ventilation are but seldom appreciated by the occupants of houses, and any system for ventilating rooms in these small houses beyond that provided by a fireplace, door, and window, must be of a surreptitious nature, and of the simplest and most economical description. A grating can easily be connected into the smoke flue, or an independent flue, to carry off the vitiated air, fresh air being admitted through the window at the level of the meeting rail, as previously explained. The use of gas for lighting purposes should be discouraged; when, however, it is adopted, the foregoing arrangement for ventilating the rooms is essential.

Drainage.

The chief consideration in the draining of these small houses is to prevent the generation of sewer-gas. This can best be accomplished by providing a good supply of water for flushing purposes, by laying the drains to good falls, and by arranging for a system of "through ventilation" as described in the extracts from Local Government Byelaws (p. 25). The lack of uniformity in the application of these Byelaws is, perhaps, nowhere more marked than in those referring to house drainage; hence any detailed remarks would be of little general use. It may be mentioned, however, in connection with the W.C. apparatus, that the provision of a 3 gallon waste-preventing cistern is always desirable, connected to the apparatus with a 1½" service pipe. The system of combining the drainage of a terrace of houses by connecting them to a common sewer in the back gardens is preferable to taking the drains of each house into the public sewer in roadway, which often entails carrying the drains under each house.

DETAILED REMARKS ON PLANS.

GROUP A.—PLANS 1 TO 3.

Group A.

For Frontages from 11'. 0" to 13'. 0".

GROUP A consists of 3 plans, which are intended to represent the smallest possible form of terrace house that can be erected, with some regard for comfort, convenience, and sanitation. In the typical example (A 1) the staircase is placed in a central position; in the others the staircases are at the sides, adjoining the party walls.

No. 1 is a typical plan, similar to one from which numerous houses have been erected. It is **Plan No. 1.** drawn to a frontage of 11'. 6" for purposes of comparison with A 3 and A 4, and presents the usual features—of the fireplace being placed on the party walls, and the staircase between the front and back rooms.

In plan No. 2 the two houses together occupy a frontage of 24 feet. The plan shows a **Plan No. 2.** "give and take" arrangement, by means of which an extra bedroom is provided, making three in all, two of them having fireplaces. The staircases are placed alternately back and front, bed bulkheads being formed, as shown on the large scale detail plate (p. 20).

The third plan, like No. 2, is another attempt to improve upon No. 1; but the fireplaces and **Plan No. 3.** the back additions are placed adjoining the broken party wall. The setting out of the space at the rear can be best understood by a reference to the block plans, where it will be seen that the alternative method of arranging the adjoining yards in unequal widths, but with the outbuildings equi-distant, is the better of the two. The yard on this plan, however, is drawn with the space between the outbuildings alternately wide and narrow.

GROUP B.—PLANS 1 TO 4 (DRAWN TO 13'. 0" FRONTAGES).

Group B.

For Frontages from 13'. 0" to 15'. 0".

Group B consists of 4 plans, illustrating the smallest house, having a front external door opening into a passage (instead of into the front room, or a small lobby, as in the foregoing group). In B 2 and 4 the staircases are arranged centrally between the front and back rooms, and in B 1 and 3 at the sides adjoining the party walls.

Plan No. 1 is typical, and forms the model from which many thousands of houses are built. **Plan No. 1.** Its features open to criticism are the position of the fireplaces, reducing the width of the rooms, and the provision of only 2 bedrooms.

The second plan, like No. 1, is drawn from an existing example. It differs from No. 1 by having **Plan No. 2.** the staircase arranged in a central position between the front and back room, which arrangement increases the depth and cost of the house, but gives an approach to the first floor without passing through the living room; in other respects the plan has the same undesirable features as No. 1, with the additional objection of the coal store being approached through the living room.

H.

C

- Plan No. 3.** This is an attempt to improve on No. 1. The chief improvements claimed in it are, the provision of 3 bedrooms on the first floor, the increased width obtained in the rooms by the arrangement of the fireplaces, and the grouping of the bays together; the latter, being carried up two storeys, effects a saving as well as an improvement on the first floor. The back additions are similar to No. 1, and the coals are stored under the stairs.
- Plan No. 4.** In the fourth plan an attempt is made to improve on No. 2, the principal improvement claimed being the provision of 3 bedrooms on the first floor, all of which are provided with fireplaces. Some extra space is obtained by carrying one bedroom into the back addition over a portion of the scullery. On the ground floor a coal store is provided, accessible without passing through any room, and also a ventilated pantry. The bays are grouped together, the space between them forming a porch.

Group C.**GROUP C.—PLANS 1 TO 4 (DRAWN TO 15'.0" FRONTAGES).**

For Frontages from 14'.0" to 16'.0".

All the plans in this group show (for this class of house) some original features, which are obtained by adopting the "give and take" arrangement before referred to. Thus each house, back and front alternately, gains a certain space in width, as shown on these plans, the space varying in accordance with the width allowed for the staircase and entrance passage. This extra width enables a third bedroom alternately back and front to be arranged in an economical manner within the main building, instead of placing it in the outbuilding carried up a second storey, as is usually done. This arrangement does not prevent the fence lines back and front being kept on the boundary lines of the site in the usual manner. No typical plan has been drawn to compare with any of this group, but it is considered they would compare favourably with any plan of equal extent drawn to the same frontage.

- Plan No. 1.** The first plan shows the outbuildings on the straight party wall with the staircases adjoining the "broken" party wall. This is perhaps the most satisfactory plan of the group, having good straight lines throughout with equal yard space, good ventilated pantries, convenient access to "coals," and 3 bedrooms on the first floor, 2 of which have fireplaces.
- Plan No. 2.** This plan is in many respects similar to No. 1, but the outbuilding is on a continuation of the "broken" party wall, while the staircases adjoin the straight one, the yard space is unequal, but the fences are on the usual boundary lines. For advantages of the alternatives of Nos. 1 and 2 see block plans, Plate 21.
- Plan No. 3.** The third plan shows an alternative arrangement for No. 1 on the ground floor. By placing the pantry of one house in the outbuilding an increased width is gained for the living rooms of both houses; it also improves the width of the 2 small bedrooms at the back, and leaves the largest bedroom sufficiently wide.
- Plan No. 4.** The fourth plan is rather more complicated than Nos. 1, 2, and 3, but gives an increased width to the 2 living rooms, a ventilated pantry of equal size to each house, and 2 cupboards on the first floor, in addition to the accommodation shown on the other plans of this group. These are all desirable features, but are obtained at the expense of a few extra breaks. This, however, would not be so serious in localities where it is unnecessary to carry up the party walls above the roof.

GROUP D.—PLANS 1 TO 5 (DRAWN TO 15' . 0" FRONTAGES).

Group D.

For Frontages from 15' . 0" to 17' . 0".

In all these plans the outbuildings are carried up 2 storeys, and this space is occupied by the third bedroom. Plan No. 1 is considered a good average typical plan, while Nos. 2, 3, 4, and 5 are efforts to improve this type.

No. 1 is probably one of the best typical plans, and similar to one from which many houses have been built. It is purposely drawn with fireplaces, pantry, and "coals," as generally arranged, its advantages being that the living rooms are as large as possible for the given frontage, also the bedrooms on the first floor, and the plan is good and simple as a whole. Its features open to criticism are the position of the fireplaces, the access to "coals" through living room, the space provided for keeping food, while the front bedroom is almost unnecessarily large if compared with the room considered large enough for the parlour, and the second bedroom is proportionately small, being but 7' . 0" wide measured from face of chimney breasts.

The second plan is an attempt to improve on No. 1 by means of the "give and take" arrangement, thereby gaining additional width to each house alternately back and front. This and the extra space gained by the altered position of the fireplaces considerably improves the living room and bedroom No. 2.

Plan No. 3 has the break in the party wall, and, like Nos. 4 and 5, shows the living room placed quite at the back. This arrangement prevents the room being made a passage room to the outbuildings, etc., it has also a much improved prospect, and the window can with advantage be made a French casement. If the scullery be fitted with a small range, the living room (as here shown) can become a second parlour. On the first floor also this plan has these advantages, that the largest bedroom instead of—as usual—the smallest, has the second best prospect. If desired, a fourth bedroom can be obtained in every alternate house, and the space shown as a cupboard on landing can be added to bedroom No. 3, or could be used as a second W.C.

The fourth is a plan for a small house, having a living room in the back addition, where it obtains the best light and prospect; it is also unnecessary to pass through it to gain access to the scullery, W.C., and yard. A French casement for a second approach to the garden usually lights this room. The W.C.'s occupy a detached position in the yard. There are 3 bedrooms on the first floor. Owing to the fact that to arrange this plan economically it is necessary that the back rooms should be on a slightly lower level than that in front, it would be very useful on sites frequently met with where the ground falls towards the back. It should be noted that the copper shown in the scullery is intended to be of the "portable" type, but this and the fireplace could be arranged as shown in the scullery of D 5.

No. 5 plan is very similar to No. 3, but rather larger. The extra space allows the addition of a bath-room on the first floor, and a fourth bedroom can, if required, be obtained in every alternate house, as shown.

Plan No. 6 gives accommodation similar to others in this group, but requires the maximum frontage allowed for these—viz., 17' . 0". It is a convenient and compact plan, the whole of the accommodation, except the W.C., being contained in the main building, and it illustrates how economy in building can be gained by a slightly increased frontage. The fireplaces are differently arranged in the two houses to show the advantages obtained by placing them opposite the length rather than the width of a room. This plan, with slight alterations, is well adapted for double tenements.

Group E.**GROUP E.—PLANS 1 TO 3 (DRAWN TO 17' . 0" FRONTAGES).***For Frontages from 16' . 0" to 18' . 0".*

These are enlargements of Nos. 1, 3, and 5 of Group D, and are the largest examples of single tenement houses drawn.

- Plan No. 1.** The first is a typical plan. Its drawbacks, beyond those common to most typical plans, are considered to be—the position of the staircase, which narrows the back parlour and the bedroom over, and leaves the front room on the first floor unnecessarily large. The prospect from the back parlour is very poor, and the window of this room is inconveniently near that of the kitchen.
- Plan No. 2.** This plan possesses many advantages over No. 1. The two parlours occupy the best positions at front and back, the kitchen and scullery are conveniently shut off, and there is a good ventilated pantry. On the first floor 4 bedrooms, bath, and W.C. are provided, alternative arrangements are shown for the bedrooms in the main building, that on the right-hand side being considered the better of the two. The staircase would be lighted from the top, and it should be noted that in this and some other houses it could be continued up to some rooms in the roof, if desired, in which case the external and party walls would have to be increased in thickness by $4\frac{1}{2}$ ".
- Plan No. 3.** The third plan illustrates another attempt to avoid some of the inconveniences of No. 1 by placing the second parlour at the back of the house, whence it has an uninterrupted view of whatever space there may be at the rear. The staircase being placed alternately back and front, the width of the kitchen is thereby increased, so is also the room over, and the front bedroom is not so unnecessarily large. A second W.C. is provided on the first floor adjoining the bath-room, and the bedrooms are fairly equal in size. The W.C.'s and "coals" on the ground floor are detached from the main buildings.

DOUBLE TENEMENT HOUSES.**Group F.****GROUP F.—PLANS 1 TO 2 (DRAWN TO 14' . 0" FRONTAGES).***For Frontages from 14' . 0" to 17' . 0".*

These plans are drawn for a type of house for which there is an increasing demand, more especially in the suburbs of London and other large centres of industry. They consist of ground and first floors arranged in "flats," being generally known as "double tenement houses." The origin of this arrangement is due to the inability of a large class of poor people to pay the rents required for single tenement houses without the assistance of lodgers, and to the fact that many houses originally built for one family are now occupied by two, one occupying the ground and one the first floor. The many inconveniences of this arrangement are avoided where the houses are expressly arranged to accommodate two small families, with independent entrances from without. It will be noticed, in connection with "double tenement houses," that in addition to a separate entrance from the street, a staircase is usually provided at the back leading to the garden in the rear. This is sometimes omitted when a flat is provided on the 1st floor level as a yard space.

- Plan No. 1.** The first plan illustrates the smallest type of double tenement house, each containing 2 rooms and a scullery, the latter forming a passage to the W.C. and yard, the 4 tenements being entered by 4 separate front doors, those to the first floor tenements being raised about 2' . 6" from the ground.

Plan No. 2 is very similar to No. 1, but has a larger back addition, containing the scullery and W.C. An alternative arrangement is shown here, whereby the front entrances of each tenement can be kept a greater distance apart, this being considered preferable. The living rooms of the first floor tenement are considerably larger than in No. 1, but objections might be raised to their facing towards the back rather than towards the front.

GROUP G.—PLANS 1 TO 5 (DRAWN TO 17' . 0" FRONTAGES).

Group G.

For Frontages from 17' . 0" to 19' . 0".

The first is an ordinary plan for this type of house drawn from an existing example, which has the considerable drawback of only providing 1 bedroom for each tenement. Other defects are to be seen in the unequal size of the rooms in the two tenements; for if the parlour on the ground floor is sufficiently large, on the first floor it is unnecessarily so, and the ground floor bedroom is considerably smaller than that provided on the first floor. A staircase is shown leading to the garden from the balcony of the first floor tenement.

Plan No. 2 is an improvement on No. 1, giving a little extra space inside the front door of the first floor tenements, while it provides a second bedroom with fireplace to each tenement on the first floor. The staircase can, if desired, be continued up to a flat over the back addition, which might be used for a drying ground and yard space instead of providing the usual balcony and steps down at the back.

The third plan introduces the "give and take" arrangement whereby an extra bedroom is obtained in every alternate tenement on the ground and first floors. It also shows the living room on the ground floor placed at the end of the outbuilding, where it can have an uninterrupted view over whatever space there may be at the back. This room is covered by a flat forming a yard space for the tenement over. The fireplaces in the rooms of the main building are placed so as to diminish the size of the rooms as little as possible.

No. 4 is very similar to No. 3, but shows a few alternatives by a different arrangement of the back addition and by providing increased bedroom accommodation.

The fifth plan is in many respects similar to Nos. 3 and 4, but the living room has always to be passed to gain access to the scullery, etc., passages being avoided as far as possible. The position and lighting of the living room is not so satisfactory as in Plan No. 3, but the whole arrangement is slightly more economical.

GROUP H.—PLANS 1 TO 2 (DRAWN TO 18' . 0" FRONTAGES).

Group H.

For Frontages from 18' . 0" to 20' . 0".

The plans of Group H are an enlargement of Group G, and illustrate the largest type of double tenement houses.

The first is a typical plan drawn from an existing example, each house containing 2 five-roomed tenements; it is in many respects a convenient and economical plan. The yard space for the first floor tenement is obtained by roofing in bedroom 2 with a flat.

Plan No. 2 is an alternative arrangement to No. 1, having the advantage of increased bedroom accommodation on the ground and first floor of every alternate house. But the

relative position of the rooms is similar. The chimney stacks and fireplaces are arranged on the cross walls, giving increased width to the rooms.

Group J.**GROUP J.—PLAN No. 1 (DRAWN TO 26' . 0" FRONTAGE).****Plan No. 1.**

This plan is drawn to illustrate another variety of double tenement houses. Its particular arrangements are due to a desire to treat the two tenements as one house, and thereby avoid the cost of a long party wall. This is accomplished by having one entrance and a joint passage from the street for both tenements. This type possesses the advantage of not having one tenement over another, and could doubtless be improved upon; but as it requires a much greater frontage than any other type of double tenement house illustrated, it is more suitable for rural than urban districts.

**Block
Plans.****BLOCK PLANS.**

A certain number of block plans are drawn (Plate 21), for the convenience of showing how the various plans would terminate at the end of a terrace should they be of an even or odd number, and how they work out if built in blocks of 2, 4, 6, or 8, with a space between, as required in some localities. They also help to suggest how the drainage can be carried out most advantageously.

In the case of building an odd number, should a difficulty arise at the end of a terrace through the break in a party wall, it is easily overcome by finishing with a house on the lines of the typical plans with a straight party wall on both sides.

DETAILED REMARKS ON ELEVATIONS.

THIS drawing of Elevation A 3 illustrates four cottages of the smallest type drawn to frontages of 12' . 0", and the following points may be noted. The entrances to the two central cottages are placed at the sides of the projecting bays, as an alternative arrangement to that shown on either side, where the entrances are placed in the front and shown on the elevations. The bays of four houses are grouped together, and are carried up one storey, being finished with a parapet wall; in the same way the large gable extends across two houses, and the smaller gables comprise the windows of two others. The central party wall is concealed by the large gable, and the party walls between bays behind the parapet walls. Sash windows are shown divided up into panes, thus giving scale to the fronts. For the walling coursed rubble is indicated with ashlar dressings to openings, etc., and for the roof slates or tiles.

Group A.
Elevation
A 3.

Elevation B 3 illustrates two houses drawn to a total frontage of 26' . 0". A feature is made of the entrances by recessing them within a segmental enclosing arch. The bays are carried up two storeys, are roofed with a flat, and shown coupled together at the first floor level. This avoids on the first floor—the objection common to all detached bays on narrow frontages—namely, the side windows looking into those of the adjoining bay windows.

Group B.
Elevation
B 3.

Sash windows are shown divided up into panes as before. For the walling brickwork is indicated, with stone banding, and for the roof, slates.

Elevation C 1 illustrates two houses drawn to a total frontage of 30' . 0". In this example iron casement windows are shown throughout hung to wood mullions and glazed with leaded lights. The roof is drawn to a pitch suitable for slating. Canted bay windows are indicated roofed in at the first floor level; the roof being carried across the front forms a porch to the entrances.

Group C.
Elevation
C 1.

On the ground storey a transome divides the windows into two ranges of lights.

On the upper floor the window sills are raised well up above the floor, the transome being omitted.

Up to the level of the roof over bay window brickwork is suggested; above that level the walls may be of brickwork or concrete, and are shown finished with rough cast, terminating in a cornice of which the gutter would form the top member. This might be carried out in either wood, stone, or cement.

Elevation D 4 illustrates two houses drawn to a total frontage of 30' . 0". Casement windows of wood are shown, divided up into panes with wooden sash bars. The bays are carried up one storey, finished with parapet walls, and are shown coupled together. Here, again, unequal frontages are shown, in the one case two front bedrooms being arranged on the first floor, and in the other one larger bedroom.

Group D.
Elevation
D 3.

For the walling, brickwork, with stone dressings, is indicated, the roof being drawn to a pitch suitable for slates.

Elevation E 3 illustrates two houses of the largest type of single tenement house, drawn to a total frontage of 34' . 0". The bays are shown coupled together, and are carried up two

Group E.
Elevation
E 3.

storeys, terminating in a gable. A porch is formed by roofing in the space between the bay windows, and sash windows are shown divided up into panes. For the walling, brickwork is indicated, and for the roofs, tiles.

**Group F.
Elevation
F 2.**

This drawing illustrates the smallest class of double tenement drawn to a frontage of 14' . 0". The entrances to the upper tenements are arranged at a level of about 2' . 6" from the ground; those to the lower tenements are at the side of the projecting lobbies, and consequently do not appear in the elevations. In this example the gables are set back, and the projecting entrances terminate with overhanging eaves.

Casement windows are shown, and for the walls throughout brickwork is indicated. Tiles are suggested as a roof covering.

**Group G.
Elevation
G 3.**

Elevation G 3 illustrates another type of double tenement house drawn to frontages of 17' . 0" each. The "give and take" arrangement shown on the plans does not influence these elevations. The bay windows are shown coupled together carried up one storey only, roofed with a flat, and finished with a parapet wall.

The walls from ground floor window-sill level may be built of concrete or brickwork, and are shown finished "rough cast," below which brickwork is indicated. The chimney stack is carried on a cross wall at right angles to the party walls.

Sash windows are shown divided up into panes, and slates are suggested as a roof covering.

**Group H.
Elevation
H 2.**

This drawing illustrates the largest type of the double tenement houses drawn to 18' . 0" frontages. The chimney stack is arranged parallel with the ridge of the roof. The bays are coupled together, and shown carried up two storeys, terminating with a gable, the wall of which conceals the party wall. The windows indicated are double-hung sash windows divided up into panes. The entrances are recessed, as in the preceding group.

The materials suggested are—for the roof, green slates; for the walling, brickwork and freestone dressings.

Where the flats over ground floor rooms are used as yards, a coke breeze concrete floor, finished with granolithic or asphalt paving, is found to be most suitable for hard wear; if lead is used, it should be protected with battening.

TABLE GIVING SIZES OF ROOMS, &c.

THE following table has been prepared to give the sizes of the principal rooms of each plan for the various frontages to which it is adapted. The superficial areas, cubical contents, and cost at 1d. per foot cube are also included in order to compare the size and cost of one house with another. The dimensions, influenced by the frontage only, are increased, the depths from back to front remaining the same. The smallest frontage allowed for each plan gives a minimum both for frontage and size of rooms. The depth being quite an optional dimension, chiefly governed by the consideration of cost, can of course always be increased to bring the superficial area of the rooms to a more desirable size. It is estimated that these houses can now be built by contract in the London district at a cost varying from $5\frac{1}{2}d.$ to $6\frac{1}{2}d.$ per foot cube, and in the provinces at a considerably lower rate.

Plan.	Front- ages, 2 Houses.	GROUND FLOOR.		FIRST FLOOR.			2 HOUSES.		
		Parlour, without Bay.	Living Room.	Bedroom 1.	Bedroom 2.	Bedroom 3.	Area of Ground Covered.	Cubical Contents.	Price at 1d. per Foot Cube.
							Square Feet.	Cubic Feet.	
A. 1.	22' 0"	10' 0" x 10' 3"	10' 0" x 10' 3"	10' 0" x 10' 3"	10' 0" x 10' 3"	...	751	15,039	£62 13 3
	23' 0"	10' 0" x 10' 9"	10' 0" x 10' 9"	10' 0" x 10' 9"	10' 0" x 10' 9"	...	776	15,614	£65 1 2
	24' 0"	10' 0" x 11' 3"	10' 0" x 11' 3"	10' 0" x 11' 3"	10' 0" x 11' 3"	...	801	16,189	£67 9 1
	25' 0"	10' 0" x 12' 3"	10' 0" x 12' 3"	10' 0" x 12' 3"	10' 0" x 12' 3"	...	851	17,339	£72 4 11
	26' 0"	10' 0" x 9' 9"	10' 0" x 9' 9"	10' 0" x 9' 9"	10' 0" x 5' 6"	6' 9" x 7' 0"	732	14,028	£58 9 0
„ 2 & 3	26' 0"	10' 0" x 10' 9"	10' 0" x 10' 9"	10' 0" x 10' 9"	10' 0" x 6' 6"	6' 9" x 7' 0"	776	14,966	£62 9 8
B. 1.	26' 0"	10' 0" x 9' 0"	10' 0" x 9' 3"	10' 0" x 12' 3"	10' 0" x 9' 3"	...	728	14,456	£60 4 8
	28' 0"	10' 0" x 9' 9"	10' 0" x 10' 0"	10' 0" x 13' 3"	10' 0" x 10' 0"	...	772	15,424	£64 5 4
	30' 0"	10' 0" x 10' 9"	10' 0" x 11' 0"	10' 0" x 14' 3"	10' 0" x 11' 0"	...	816	16,392	£68 6 0
	26' 0"	10' 0" x 9' 0"	10' 0" x 12' 3"	10' 0" x 12' 3"	10' 0" x 12' 3"	...	814	16,918	£70 9 10
	28' 0"	10' 0" x 9' 9"	10' 0" x 13' 3"	10' 0" x 13' 3"	10' 0" x 13' 3"	...	864	18,068	£75 5 8
„ 2.	30' 0"	10' 0" x 10' 9"	10' 0" x 14' 3"	10' 0" x 14' 3"	10' 0" x 14' 3"	...	914	19,218	£80 1 6
	26' 0"	10' 0" x 9' 0"	10' 0" x 9' 3"	10' 0" x 12' 3"	10' 0" x 5' 3"	7' 9" x 6' 6"	746	15,008	£62 10 8
	28' 0"	10' 0" x 9' 9"	10' 0" x 10' 3"	10' 0" x 13' 3"	10' 0" x 6' 0"	7' 9" x 7' 0"	790	15,976	£66 11 4
	30' 0"	10' 0" x 10' 9"	10' 0" x 11' 3"	10' 0" x 14' 3"	10' 0" x 6' 6"	7' 9" x 7' 6"	834	16,944	£70 12 0
	26' 0"	10' 0" x 9' 0"	10' 0" x 9' 6"	10' 0" x 12' 3"	10' 0" x 6' 0"	10' 0" x 6' 0"	844	17,698	£73 14 10
„ 4.	28' 0"	10' 0" x 9' 9"	10' 0" x 10' 6"	10' 0" x 13' 3"	10' 0" x 6' 6"	10' 0" x 6' 6"	888	18,666	£77 15 6
	30' 0"	10' 0" x 11' 9"	10' 0" x 11' 6"	10' 0" x 14' 3"	10' 0" x 7' 0"	10' 0" x 7' 0"	932	19,634	£81 16 2
C. 1 & 2	28' 0"	11' 0" x 9' 0"	12' 0" x 9' 0"	12' 0" x 12' 0" & 11' 0" x 7' 0"	11' 0" x 7' 0" & 12' 0" x 7' 0"	7' 6" x 7' 1½"	868	18,116	£75 9 8
	30' 0"	11' 0" x 9' 9"	12' 0" x 9' 9"	12' 0" x 13' 0" & 11' 0" x 13' 0"	11' 0" x 8' 0" & 12' 0" x 8' 0"	7' 6" x 7' 1½"	918	19,266	£80 5 6
	32' 0"	11' 0" x 10' 6"	12' 0" x 10' 6"	12' 0" x 14' 0" & 11' 0" x 14' 0"	11' 0" x 9' 0" & 12' 0" x 9' 0"	7' 6" x 7' 1½"	968	20,416	£85 1 4
	28' 0"	11' 0" x 9' 0"	12' 0" x 11' 0" & 12' 0" x 10' 0"	12' 0" x 11' 0" & 11' 0" x 12' 0"	11' 0" x 7' 0" & 12' 0" x 8' 0"	7' 6" x 7' 0" & 7' 6" x 7' 0"	868	18,166	£75 9 8
	30' 0"	11' 0" x 9' 9"	12' 0" x 11' 6" & 12' 0" x 11' 4"	12' 0" x 11' 6" & 12' 0" x 13' 0"	11' 0" x 8' 0" & 12' 0" x 9' 0"	7' 6" x 7' 0" & 7' 6" x 7' 0"	918	19,266	£80 5 6
„ 3.	32' 0"	11' 0" x 10' 6"	12' 0" x 12' 6" & 12' 0" x 12' 4"	12' 0" x 12' 6" & 11' 0" x 14' 0"	11' 0" x 9' 0" & 12' 0" x 10' 0"	7' 6" x 7' 0" & 7' 6" x 7' 0"	968	20,416	£85 1 4
	28' 0"	11' 0" x 9' 0"	12' 0" x 10' 6" & 12' 0" x 10' 4"	12' 0" x 10' 6" & 11' 0" x 12' 0"	12' 0" x 6' 10" & 11' 0" x 7' 0"	8' 6" x 6' 0" & 6' 9" x 7' 0"	868	18,116	£75 9 8
	30' 0"	11' 0" x 9' 9"	12' 0" x 11' 3" & 12' 0" x 11' 1"	12' 0" x 11' 3" & 11' 0" x 13' 0"	12' 0" x 7' 10" & 11' 0" x 8' 0"	8' 6" x 6' 0" & 6' 9" x 7' 0"	918	19,266	£80 5 6
	32' 0"	11' 0" x 10' 6"	12' 0" x 12' 3" & 12' 0" x 12' 4"	12' 0" x 12' 3" & 11' 0" x 14' 0"	12' 0" x 8' 10" & 11' 0" x 9' 0"	8' 6" x 6' 0" & 6' 9" x 7' 0"	968	20,416	£85 1 4
	28' 0"	11' 0" x 9' 0"	12' 0" x 10' 6" & 12' 0" x 10' 4"	12' 0" x 10' 6" & 11' 0" x 12' 0"	12' 0" x 6' 10" & 11' 0" x 7' 0"	8' 6" x 6' 0" & 6' 9" x 7' 0"	868	18,116	£75 9 8
„ 4.	30' 0"	11' 0" x 9' 9"	12' 0" x 11' 3" & 12' 0" x 11' 1"	12' 0" x 11' 3" & 11' 0" x 13' 0"	12' 0" x 7' 10" & 11' 0" x 8' 0"	8' 6" x 6' 0" & 6' 9" x 7' 0"	918	19,266	£80 5 6
	32' 0"	11' 0" x 10' 6"	12' 0" x 12' 3" & 12' 0" x 12' 4"	12' 0" x 12' 3" & 11' 0" x 14' 0"	12' 0" x 8' 10" & 11' 0" x 9' 0"	8' 6" x 6' 0" & 6' 9" x 7' 0"	968	20,416	£85 1 4

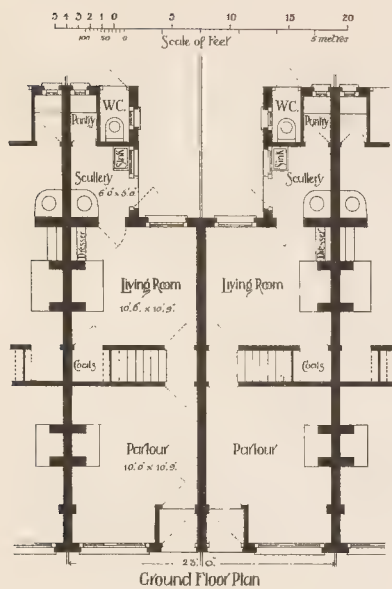
TABLE GIVING SIZES OF ROOMS, ETC.

Plan	Front ages, 2 Houses		GROUND FLOOR.		FIRST FLOOR.			2 HOUSES		
			Parlour, without Bay.	Living Room	Bedroom 1	Bedroom 2.	Bedroom 3.	Area of Ground Covered	Cubical Contents.	Price at 1d. per Foot Cube.
D. 1	30' 0"	11' 0" x 10' 9"	12' 0" x 11' 3"	11' 0" x 14' 3"	12' 0" x 8' 3"	9' 3" x 8' 0"	998	21,486	£89 10 6	
,, 2	32' 0"	11' 0" x 11' 6"	12' 0" x 12' 0"	11' 0" x 15' 3"	12' 0" x 9' 0"	9' 3" x 8' 0"	1,048	22,636	£94 6 4	
	34' 0"	11' 0" x 12' 6"	12' 0" x 13' 0"	11' 0" x 16' 3"	12' 0" x 10' 0"	9' 3" x 8' 0"	1,098	23,786	£99 2 2	
	30' 0"	11' 0" x 9' 9"	12' 0" x 12' 9"	11' 0" x 13' 0" &	12' 0" x 9' 9"	9' 3" x 8' 0"	1,026	21,834	£90 19 6	
,, 3	32' 0"	11' 0" x 10' 6"	12' 0" x 13' 9"	11' 0" x 14' 0" &	12' 0" x 10' 6"	9' 3" x 8' 0"	1,076	22,984	£95 15 4	
	34' 0"	11' 0" x 11' 6"	12' 0" x 14' 9"	11' 0" x 13' 6"	12' 0" x 11' 6"	9' 3" x 8' 0"	1,126	24,134	£100 11 2	
	30' 0"	11' 0" x 9' 9"	10' 9" x 10' 0"	11' 0" x 13' 0" &	10' 9" x 10' 0" &	7' 0" x 9' 6" &	986	20,484	£85 7 0	
,, 4	32' 0"	11' 0" x 10' 6"	10' 9" x 10' 6"	11' 0" x 14' 6"	10' 9" x 10' 6" &	7' 0" x 9' 6" &	1,026	21,364	£89 0 4	
	34' 0"	11' 0" x 11' 6"	10' 9" x 10' 6"	11' 0" x 15' 0" &	10' 9" x 10' 6" &	7' 0" x 11' 6" &	1,066	22,244	£92 13 8	
	30' 0"	11' 0" x 10' 6"	10' 0" x 9' 0"	11' 0" x 13' 0" &	10' 0" x 9' 0"	7' 0" x 9' 0"	1,040	20,880	£87 0 0	
,, 5	32' 0"	11' 0" x 11' 3"	10' 0" x 9' 6"	11' 0" x 15' 3"	10' 0" x 9' 6"	7' 0" x 10' 0"	1,080	21,760	£90 13 4	
	34' 0"	11' 0" x 12' 3"	10' 0" x 9' 6"	11' 0" x 16' 3"	10' 0" x 9' 6"	7' 0" x 11' 0"	1,120	22,640	£94 6 8	
	30' 0"	11' 0" x 9' 9"	10' 9" x 10' 0"	11' 0" x 13' 0" &	10' 9" x 10' 0" &	7' 0" x 9' 9"	1,030	20,990	£87 9 2	
,, 6	32' 0"	11' 0" x 10' 6"	10' 9" x 10' 6"	11' 0" x 14' 0" &	10' 9" x 10' 6" &	7' 0" x 10' 6"	1,070	21,870	£91 2 6	
	34' 0"	11' 0" x 11' 6"	10' 9" x 10' 6"	11' 0" x 15' 0" &	10' 9" x 10' 6" &	7' 0" x 11' 6"	1,110	22,750	£94 15 10	
	34' 0"	11' 0" x 9' 10½"	12' 0" x 9' 10½"	11' 0" x 9' 10½"	12' 0" x 9' 10½"	8' 3" x 6' 0"	922	20,414	£85 1 2	
E. 1	32' 0"	11' 6" x 11' 3" &	10' 0" x 9' 6"	11' 6" x 15' 3"	11' 7½" x 9' 3"	10' 0" x 9' 6"	1,304	27,766	£115 13 10	
,, 2	34' 0"	11' 6" x 12' 3" &	10' 0" x 10' 6"	11' 6" x 16' 3"	11' 7½" x 10' 3"	10' 0" x 10' 6"	1,354	28,916	£120 1 4	
	36' 0"	11' 6" x 12' 9" &	10' 0" x 10' 6"	11' 6" x 17' 3"	11' 7½" x 11' 0"	10' 0" x 10' 6"	1,404	30,066	£125 5 6	
	32' 0"	11' 6" x 10' 9" &	12' 0" x 9' 3"	11' 9" x 9' 3"	12' 0" x 9' 3"	10' 0" x 9' 6"	1,412	29,424	£122 12 0	
,, 3	34' 0"	11' 9" x 11' 3" &	12' 0" x 10' 0"	11' 9" x 10' 0"	12' 0" x 10' 0"	10' 0" x 10' 6"	1,464	30,620	£127 11 6	
	36' 0"	11' 9" x 12' 3" &	12' 0" x 10' 9"	11' 9" x 11' 0"	12' 0" x 10' 10"	10' 0" x 10' 6"	1,516	31,816	£132 11 4	
	32' 0"	11' 0" x 9' 6" &	10' 1½" x 10' 6"	11' 0" x 10' 6"	10' 1½" x 10' 6"	11' 0" x 9' 6"	1,366	27,374	£114 1 2	
,, 4	34' 0"	11' 0" x 10' 6" &	10' 1½" x 11' 1½"	11' 0" x 11' 1½"	10' 1½" x 11' 1½"	11' 0" x 10' 6"	1,412	28,786	£119 18 10	
	36' 0"	11' 0" x 11' 1½" &	10' 1½" x 12' 1½"	11' 0" x 12' 1½"	10' 1½" x 12' 1½"	11' 0" x 10' 6"	1,453	29,798	£124 3 2	
	11' 0" x 12' 1½"									
F. 1	28' 0"	..	10' 7½" x 9' 10½"	10' 6" x 9' 6"	..	..	766	16,238	£67 13 2
,, 2	30' 0"	..	10' 7½" x 10' 10½"	10' 6" x 9' 6"	..	..	812	17,250	£71 17 6
	32' 0"	..	10' 7½" x 11' 10½"	10' 6" x 10' 0"	..	..	858	18,262	£76 1 0
	34' 0"	..	10' 7½" x 12' 10½"	10' 6" x 11' 0"	..	..	904	19,274	£80 6 2
,, 3	28' 0"	..	10' 7½" x 9' 10½"	10' 6" x 9' 10½"	..	..	842	17,568	£73 4 0
	30' 0"	..	10' 7½" x 10' 10½"	10' 6" x 10' 10½"	..	..	888	18,280	£77 8 4
	32' 0"	..	10' 7½" x 11' 10½"	10' 6" x 11' 10½"	..	..	934	19,592	£81 12 8
,, 4	34' 0"	..	10' 7½" x 12' 10½"	10' 6" x 12' 10½"	..	..	980	20,604	£85 17 0
	34' 0"	11' 7½" x 9' 10½" &	10' 9" x 10' 0"	11' 6" x 12' 10½" &	..	..	1,288	28,300	£117 18 4
	36' 0"	11' 7½" x 10' 10½" &	10' 9" x 11' 0"	11' 6" x 13' 10½" &	..	..	1,338	29,450	£122 14 2
,, 5	38' 0"	11' 7½" x 11' 10½" &	10' 9" x 12' 0"	11' 6" x 14' 10½" &	..	..	1,388	30,600	£127 10 0
	34' 0"	11' 7½" x 9' 10½" &	10' 9" x 10' 0"	11' 6" x 9' 10½" &	11' 7½" x 6' 3"	..	1,302	28,154	£117 6 2	
	36' 0"	11' 7½" x 10' 10½" &	10' 9" x 11' 0"	11' 6" x 10' 7½"	11' 7½" x 6' 6"	..	1,352	29,304	£122 2 0	
,, 6	38' 0"	11' 7½" x 11' 10½" &	10' 9" x 12' 0"	11' 6" x 11' 10½"	11' 7½" x 6' 6"	..	1,402	30,454	£126 17 10	
	34' 0"	12' 0" x 9' 10½"	10' 6" x 9' 6" &	10' 0" x 9' 6" &	10' 0" x 6' 6"	8' 0" x 7' 0"	1,322	26,718	£111 6 6	
	36' 0"	12' 0" x 10' 7½"	10' 6" x 10' 0" &	12' 0" x 9' 0" &	10' 0" x 7' 0"	8' 0" x 7' 0"	1,372	27,868	£116 2 4	
			10' 0" x 13' 7½"	12' 0" x 10' 0"						

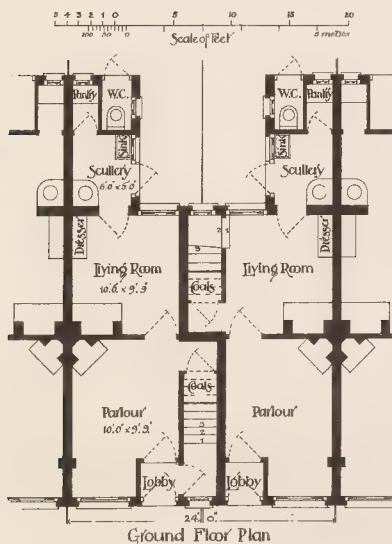
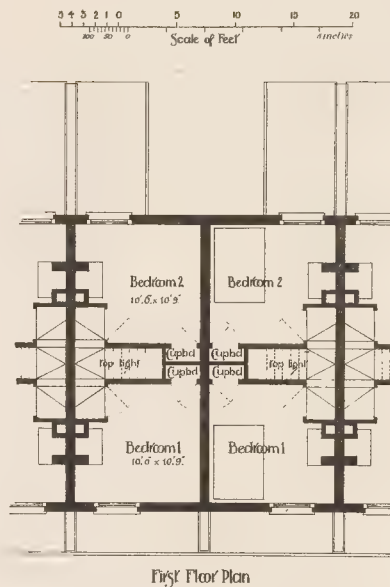
TABLE GIVING SIZES OF ROOMS, ETC.

19

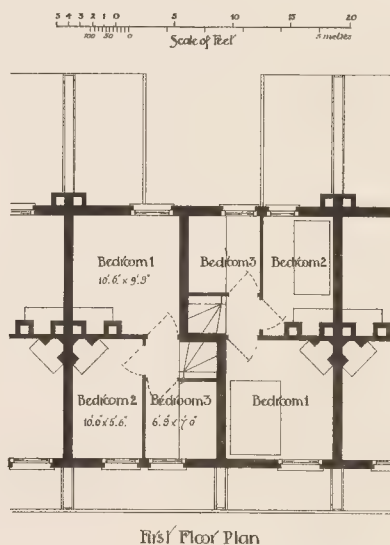
Plan	Front-ages, 2 Houses.	GROUND FLOOR.		FIRST FLOOR.			2 HOUSES		
		Parlour, without Bay.	Living Room.	Bedroom 1.	Bedroom 2.	Bedroom 3.	Area of Ground Covered.	Cubical Contents.	Price at 1d. per Foot Cube.
G. 3 (cont'd.)	38' 0"	12' 0" x 11' 7½"	10' 6" x 10' 6" & 10' 0" x 14' 7½"	10' 0" x 11' 3" & 12' 0" x 11' 0"	10' 0" x 7' 0"	8' 0" x 7' 0"	1,422	29,018	£120 18 2
" 4	34' 0"	11' 0" x 9' 10½" & 11' 0" x 9' 0"	10' 9" x 9' 0"	10' 6" x 9' 6"	10' 6" x 6' 6"	7' 0" x 7' 0"	1,270	27,470	£114 9 2
	36' 0"	11' 0" x 10' 7½" & 11' 0" x 9' 6"	10' 9" x 9' 6"	10' 6" x 10' 3"	10' 6" x 7' 0"	7' 0" x 7' 6"	1,320	28,620	£119 5 0
	38' 0"	11' 0" x 11' 7½" & 11' 0" x 10' 6"	10' 9" x 10' 0"	10' 6" x 11' 3"	10' 6" x 7' 0"	7' 0" x 7' 6"	1,370	29,770	£124 0 10
" 5	34' 0"	11' 0" x 9' 10½" & 11' 0" x 9' 0"	10' 9" x 11' 6"	10' 0" x 9' 1½" & 10' 0" x 9' 6"	7' 6" x 9' 6" & 7' 0" x 7' 0"	7' 0" x 7' 0"	1,281' 0"	26,234	£109 6 2
	36' 0"	11' 0" x 10' 9" & 11' 0" x 10' 0"	10' 9" x 12' 0"	10' 9" x 10' 1½" & 10' 0" x 10' 3"	7' 6" x 9' 6" & 7' 0" x 7' 0"	7' 0" x 7' 0"	1,316' 6"	26,970	£112 7 6
	38' 0"	11' 0" x 11' 9" & 11' 0" x 11' 0"	10' 9" x 12' 6"	10' 9" x 11' 1½" & 10' 0" x 11' 0"	7' 6" x 9' 6" & 7' 0" x 7' 0"	7' 0" x 7' 0"	1,382' 6"	28,312	£117 19 4
H. 1	36' 0"	11' 7½" x 11' 0" & 11' 7½" x 10' 0"	11' 9" x 9' 6"	11' 6" x 11' 0"	7' 0" x 7' 0"	...	1,576	32,788	£136 12 4
	38' 0"	11' 7½" x 11' 9" & 11' 7½" x 11' 0"	11' 9" x 9' 6"	11' 6" x 11' 9"	7' 0" x 7' 0"	...	1,626	33,938	£141 8 2
	40' 0"	11' 7½" x 12' 9" & 11' 7½" x 12' 0"	11' 9" x 9' 6"	11' 6" x 12' 9"	7' 0" x 7' 0"	...	1,676	35,088	£146 4 0
" 2	36' 0"	11' 3" x 11' 0" & 11' 3" x 10' 0"	11' 9" x 9' 6"	10' 6" x 10' 6"	10' 6" x 6' 6" & 8' 0" x 9' 6"	10' 6" x 6' 6" & 7' 6" x 7' 0"	1,602	34,740	£144 15 0
	38' 0"	11' 3" x 11' 9" & 11' 3" x 11' 0"	11' 9" x 9' 6"	10' 6" x 11' 6"	10' 6" x 6' 6" & 8' 0" x 9' 6"	10' 6" x 6' 6" & 7' 6" x 7' 0"	1,652	35,890	£149 10 10
	40' 0"	11' 3" x 12' 3" & 11' 3" x 12' 0"	11' 9" x 9' 6"	10' 6" x 12' 6"	10' 6" x 6' 6" & 8' 0" x 9' 6"	10' 6" x 6' 6" & 7' 6" x 7' 0"	1,702	37,040	£154 6 8
J. 1	52' 0"	10' 9" x 10' 6"	12' 3" x 9' 3"	10' 9" x 12' 5"	12' 3" x 6' 0"	7' 6" x 6' 0"	1,684	35,074	£146 2 10



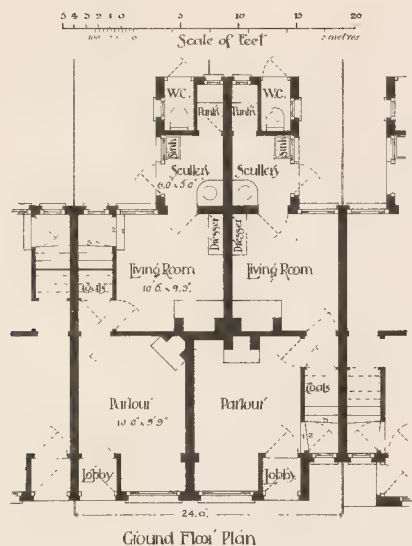
A.1



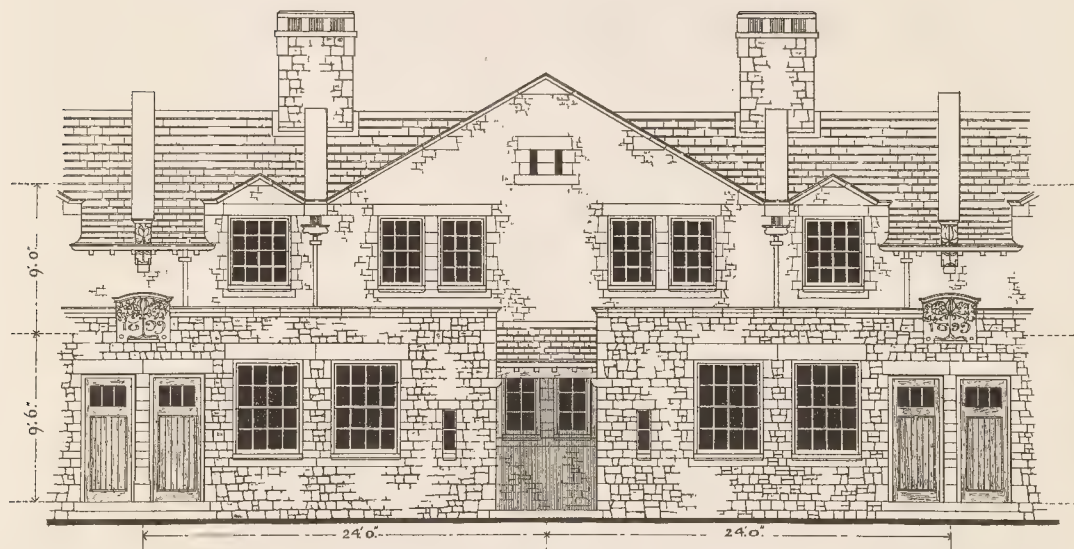
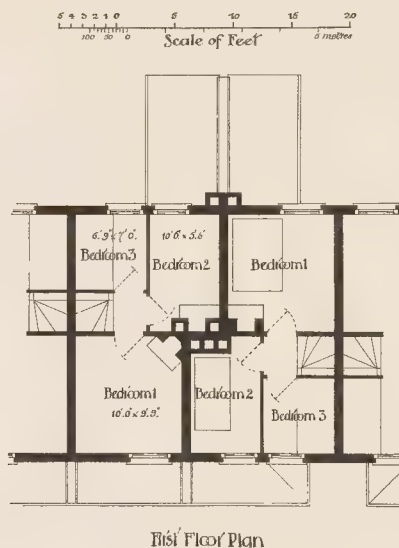
A.2



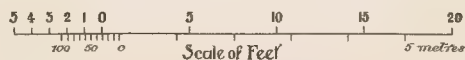
Henry & Greyfield } 19 London St. N. W.
Henry & Potter



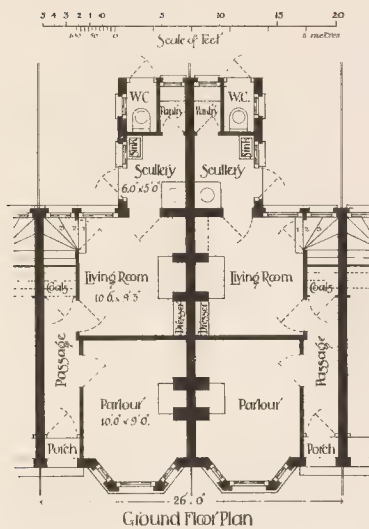
A.3



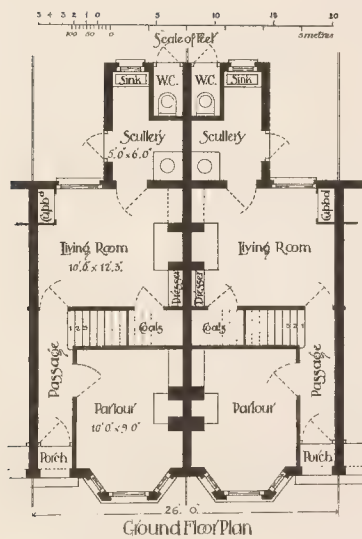
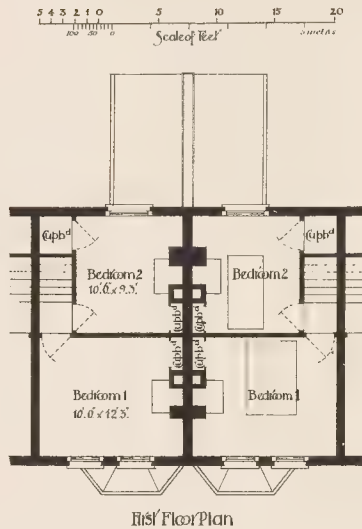
ELEVATION A.3



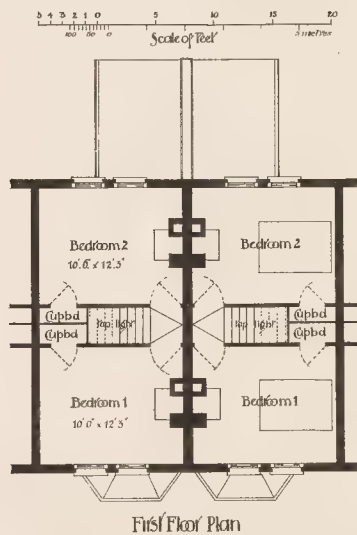
Designed by H. Cornfield
Henry J. Potter } 19 Charles St. N. B. C.



B.1

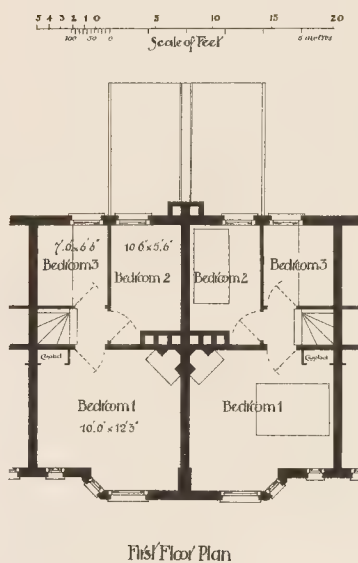
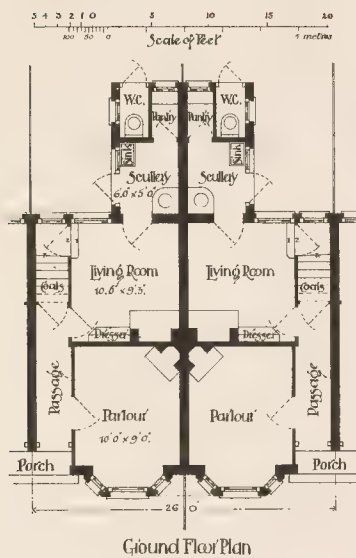


B.2

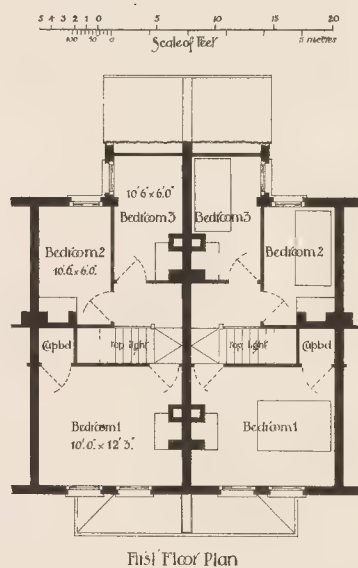
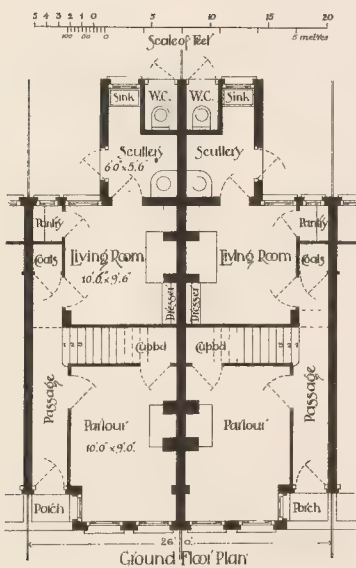


Spring, N. Cornfield
Henry J. Potter } 19 Lincoln Inn Fields, E.C.

B.5



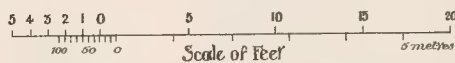
B.4



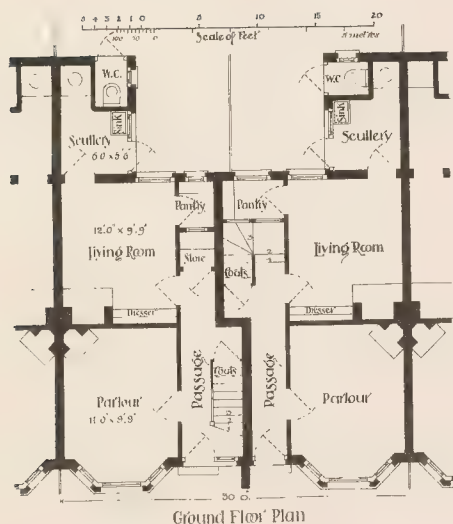
Spring, W. Longfield } 19 Lincoln Inn Fields, W.C.
 Henry J. Potter



ELEVATION B.5

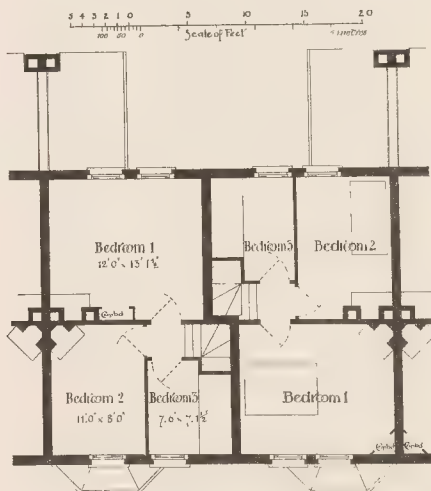


Henry, T. Greenfield
Henry, J. Potter } 19 Lincoln Ave. Boston, U.S.

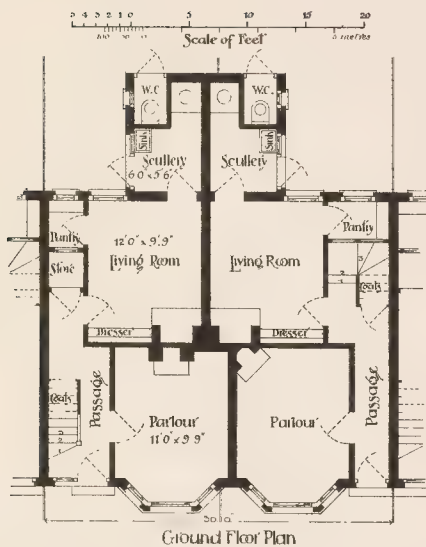


Ground Floor Plan

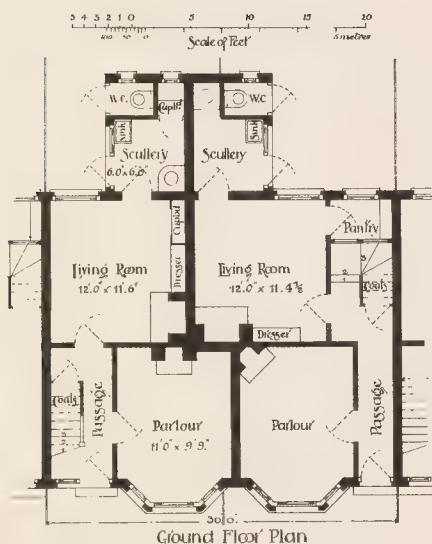
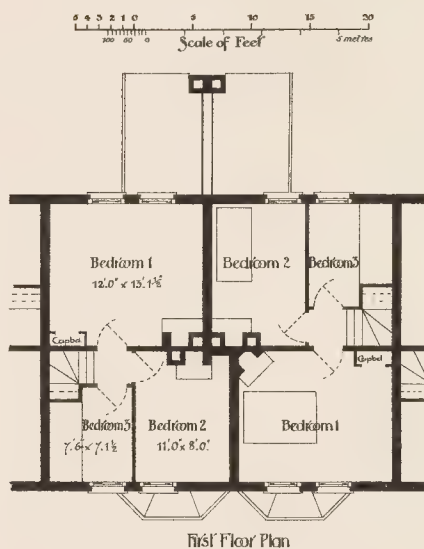
C.1



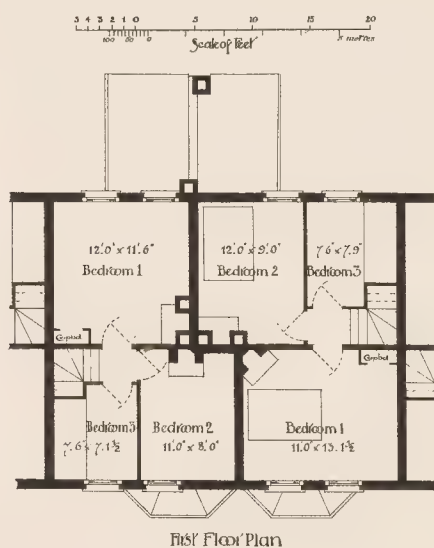
First Floor Plan



C.2

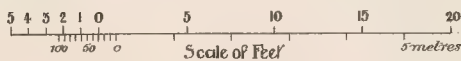
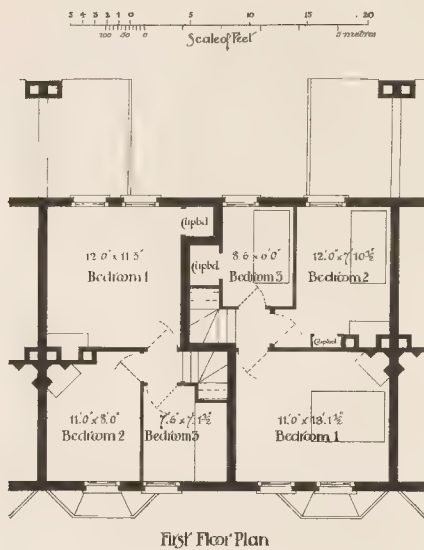
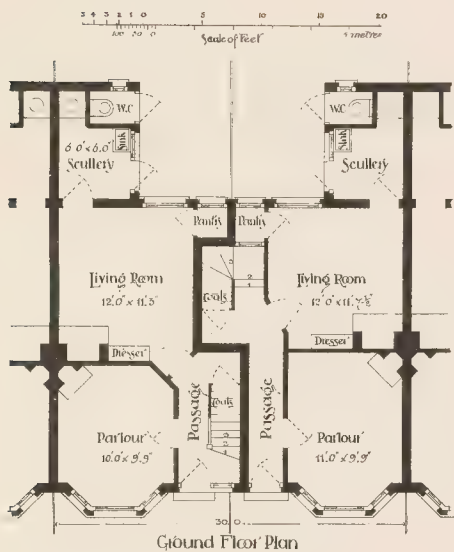


C.3

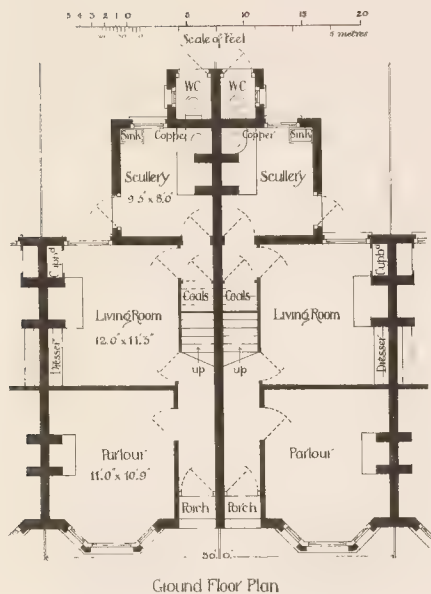


Ernest H. Crossfield } 19 Charles Street, London, W.C.
Henry J. Pater }

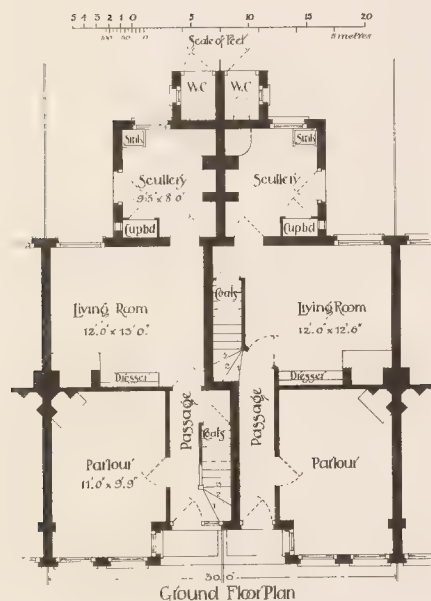
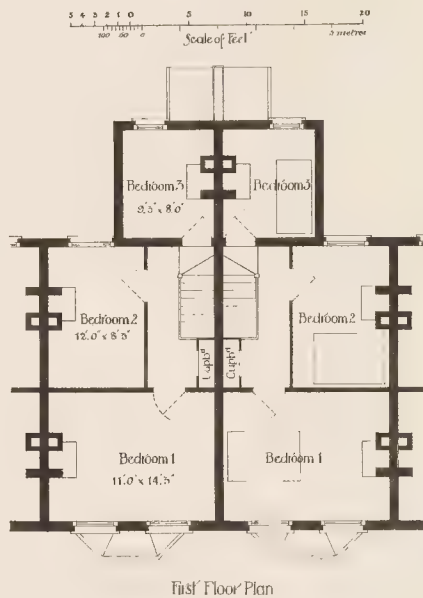
C.4



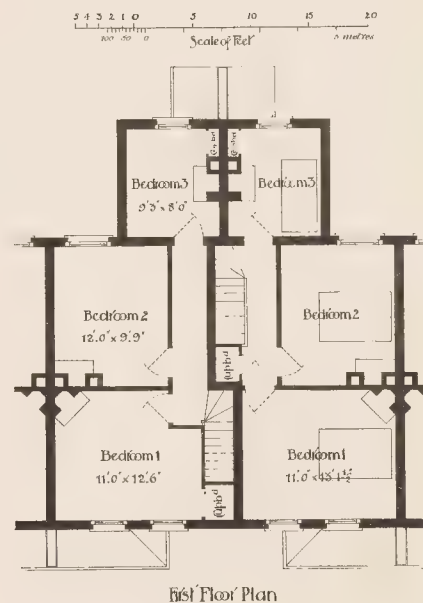
Spence & Mansfield
Henry & Potts } 19 Lincoln Lane, E.C.4.



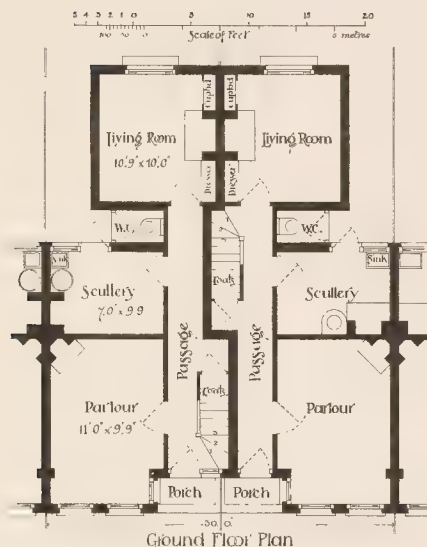
D.1



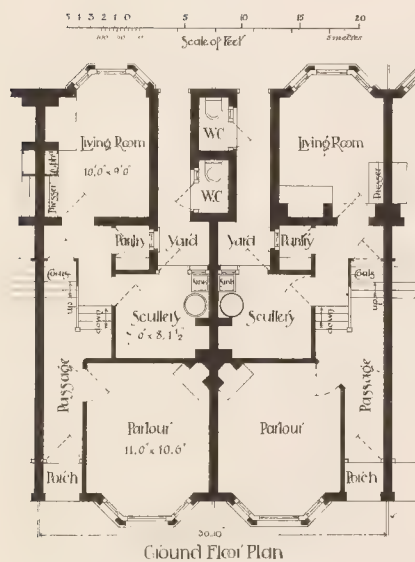
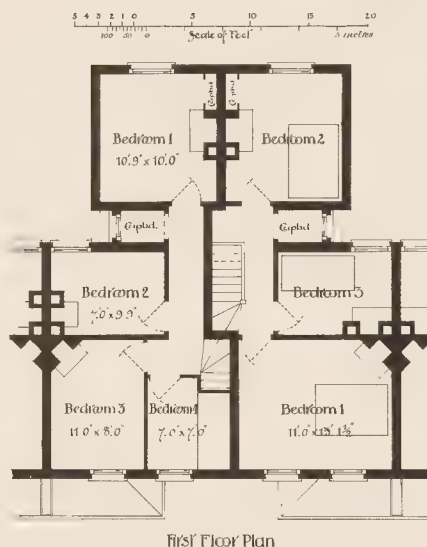
D.2



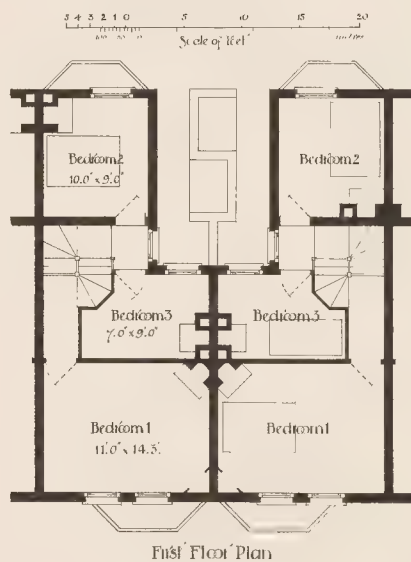
Spring & Hornfield } 19 Lincoln Lane, N. C.
Henry & Pether



D.3



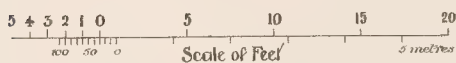
D.4



Spring, W. Mansfield
Henry & Potter } 19 Lincoln Lane, E.C.4.



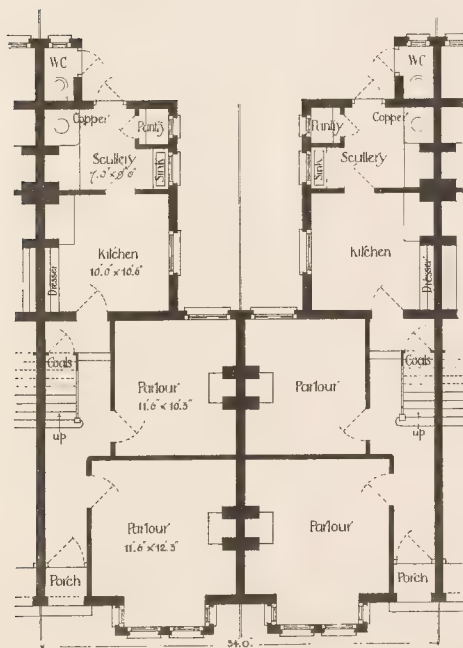
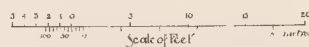
ELEVATION D.3



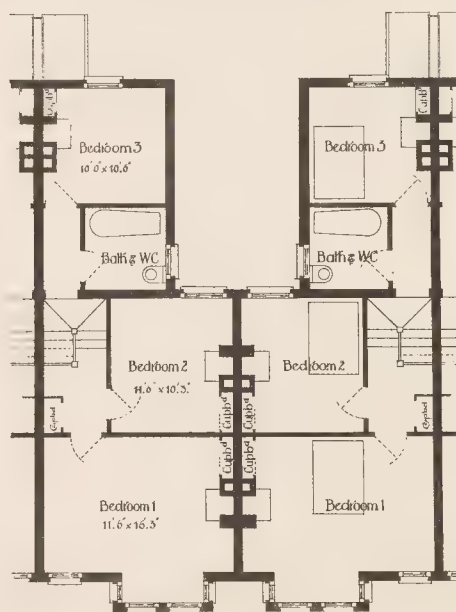
Henry J. Hornfield
Henry J. Potter } 19 Lincoln Inn Fields, E.C.



E.1

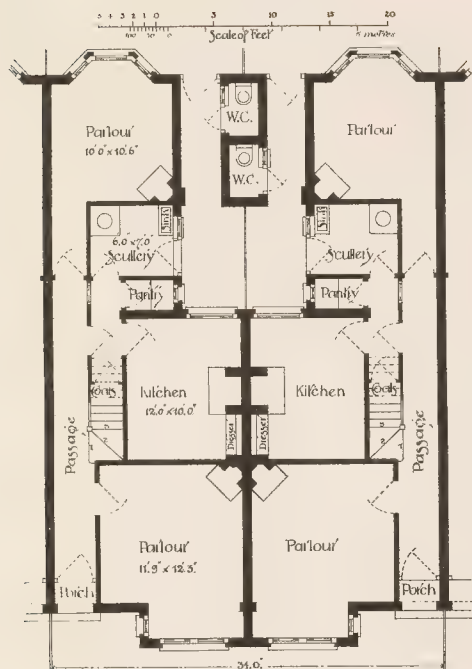


Ground Floor Plan

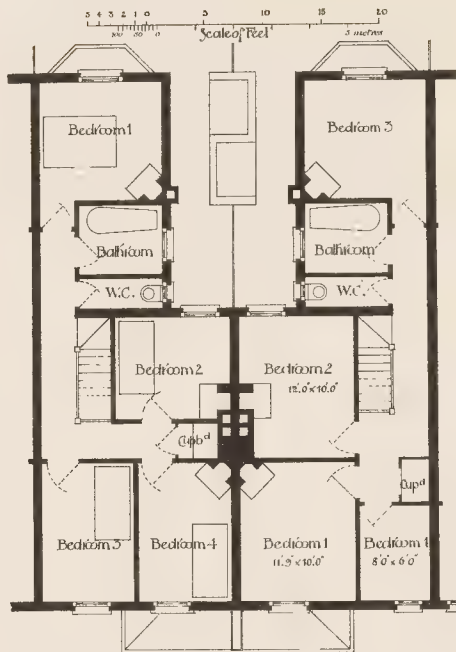


First Floor Plan

E.2

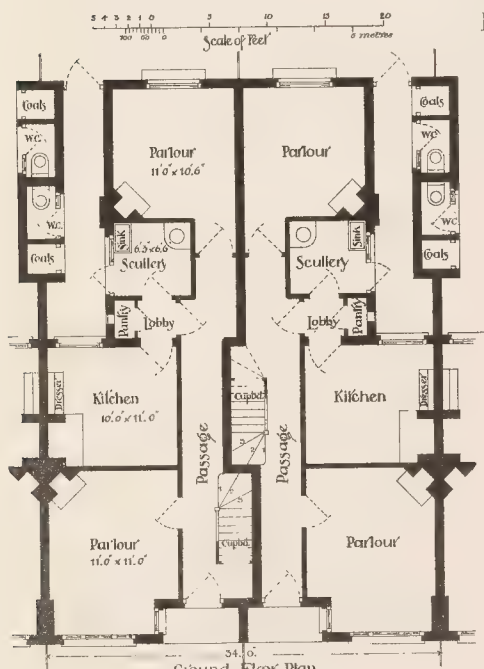


Ground Floor Plan

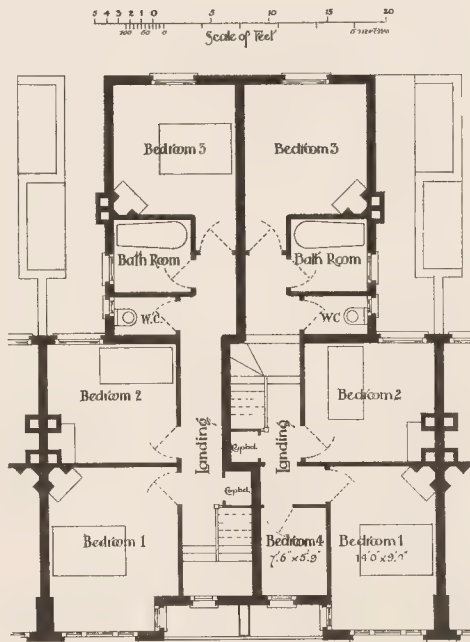


First Floor Plan

E.3

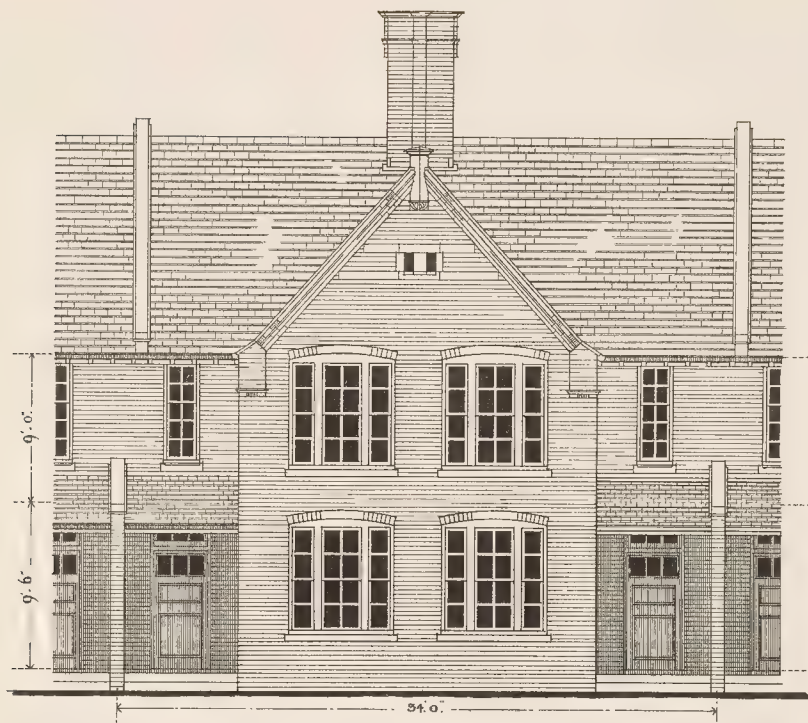


Ground Floor Plan



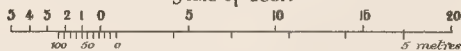
First Floor Plan

Survey of Cornfield
Henry & Porter } 19 *London & Co. Ltd.*

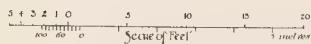


ELEVATION E.3

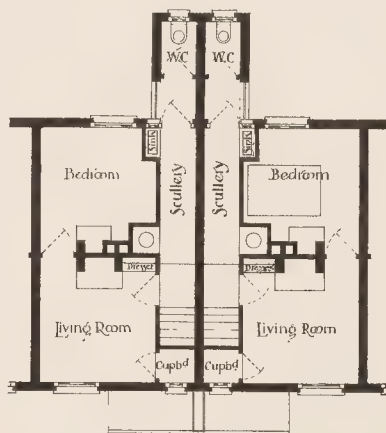
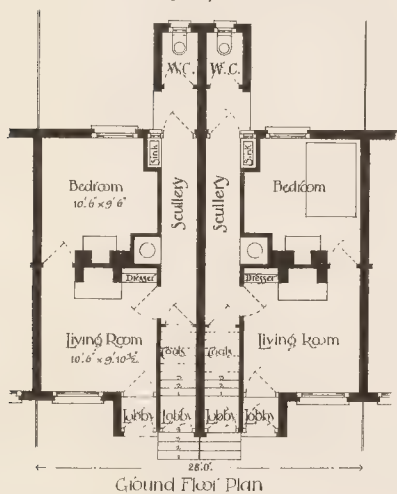
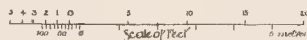
Scale of Feet.



Spring, N. Cornfield
Henry J. Potter } 19 Charles St. N. York, N.Y.

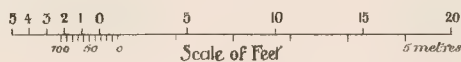
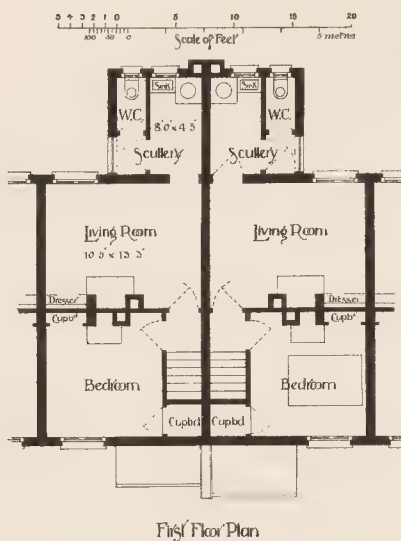
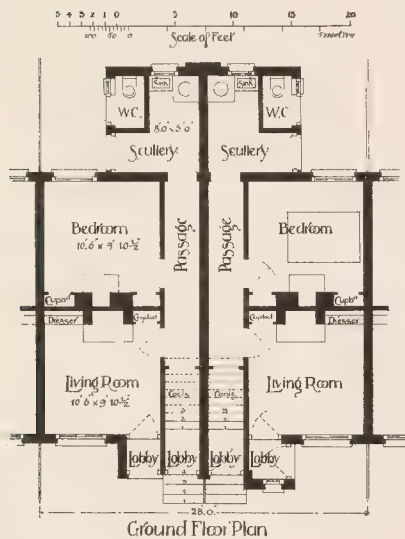


F.1

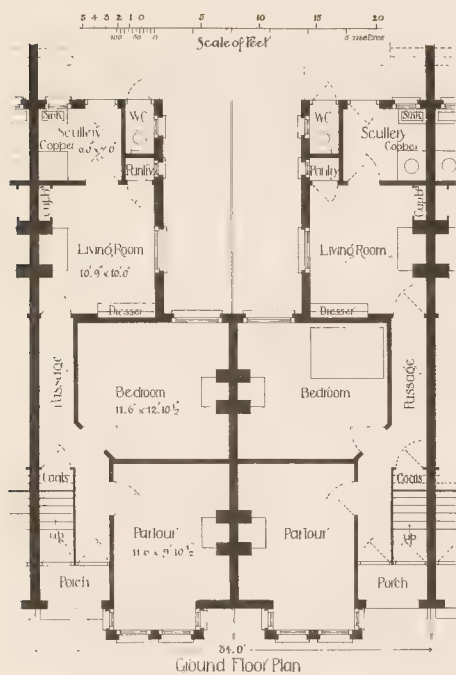


First Floor Plan

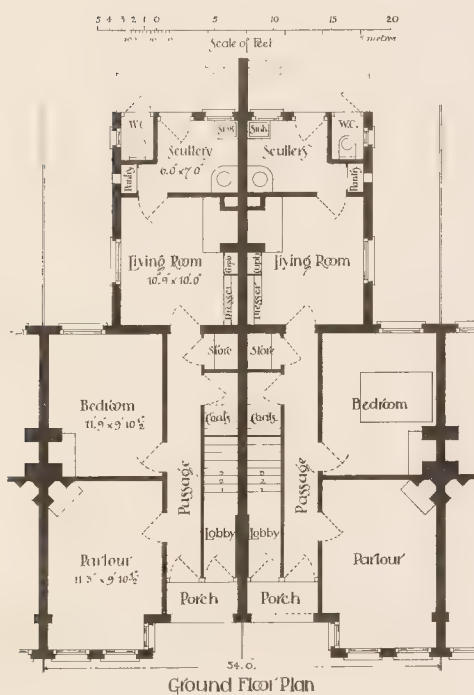
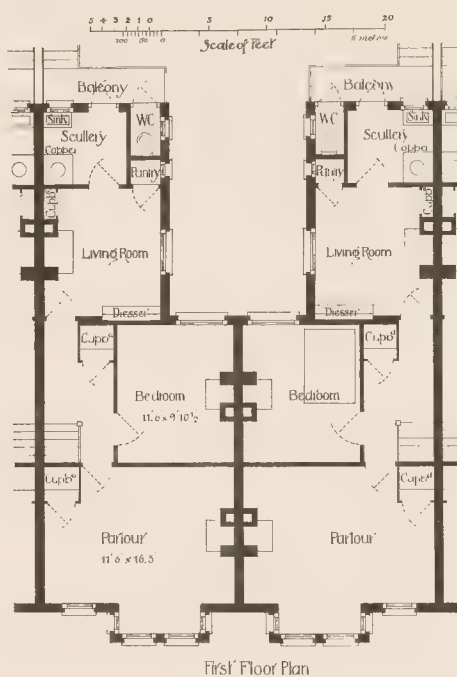
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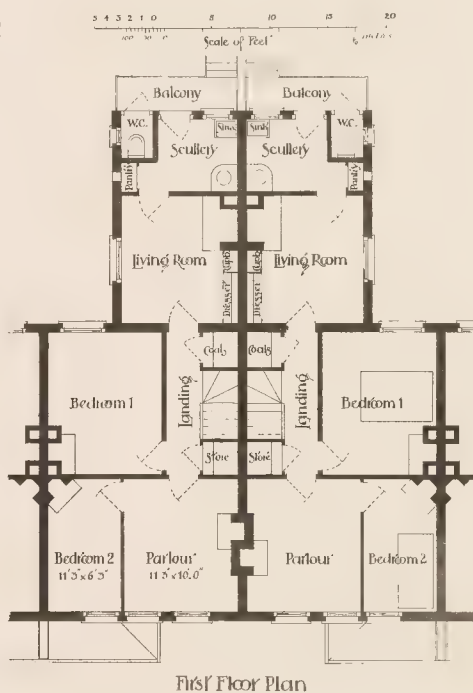
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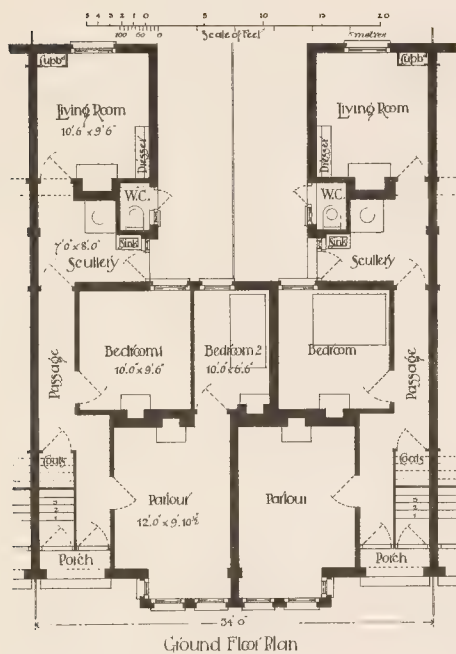
G.1



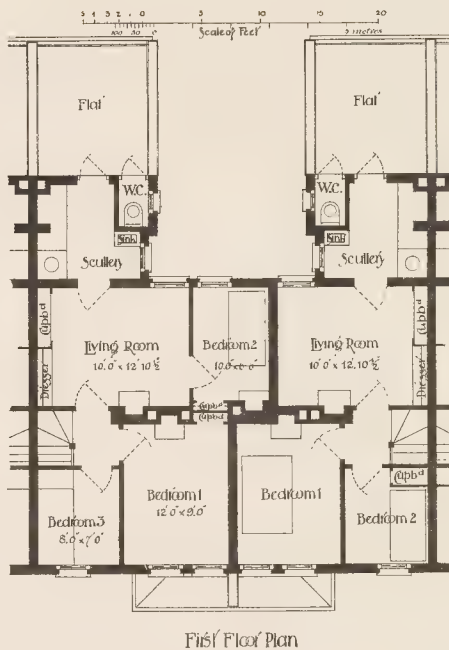
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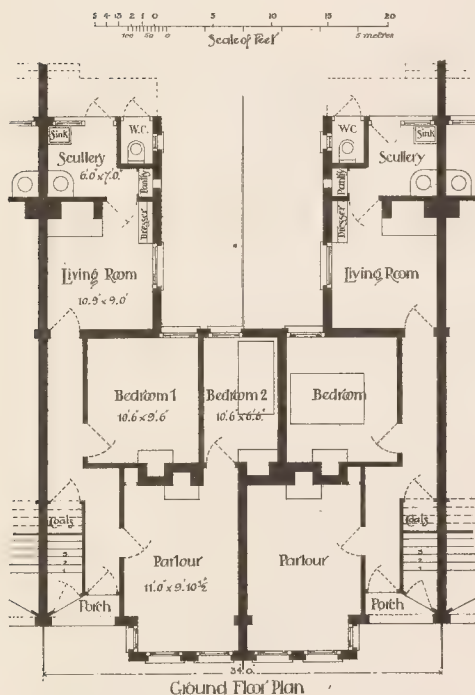
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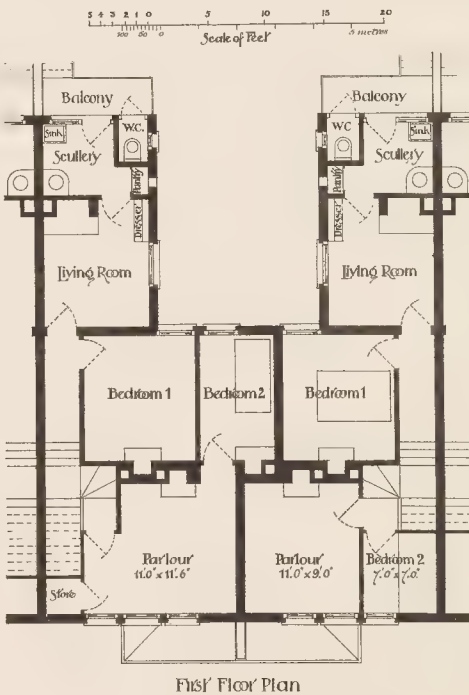
G.3



First Floor Plan



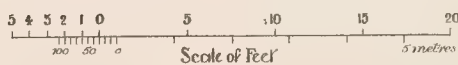
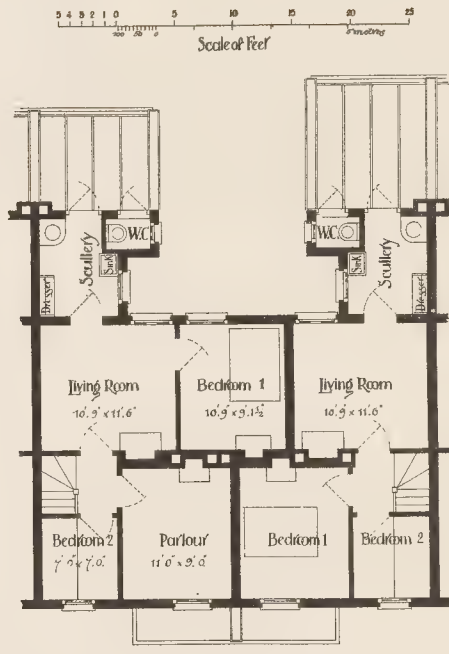
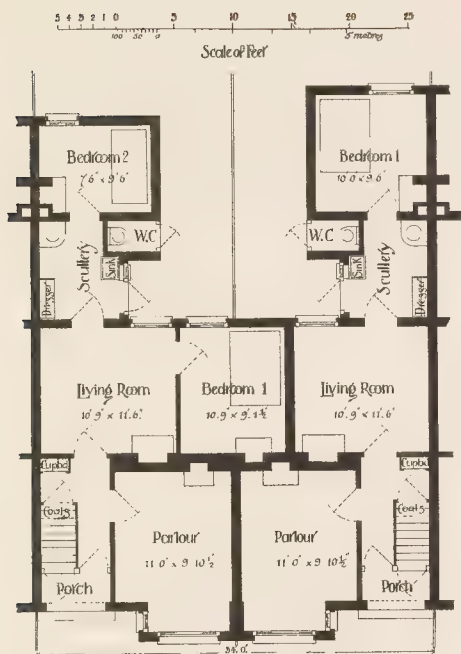
G.4



First Floor Plan

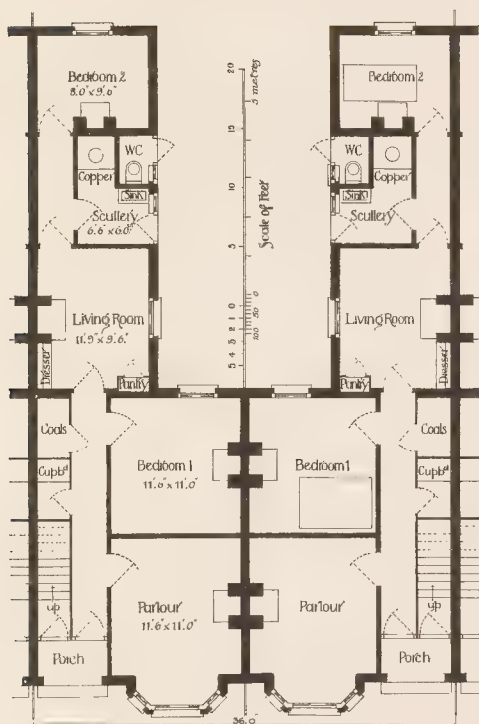
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Henry J. Potter } 19 Lincoln Lane, E.C.4.

G. 5

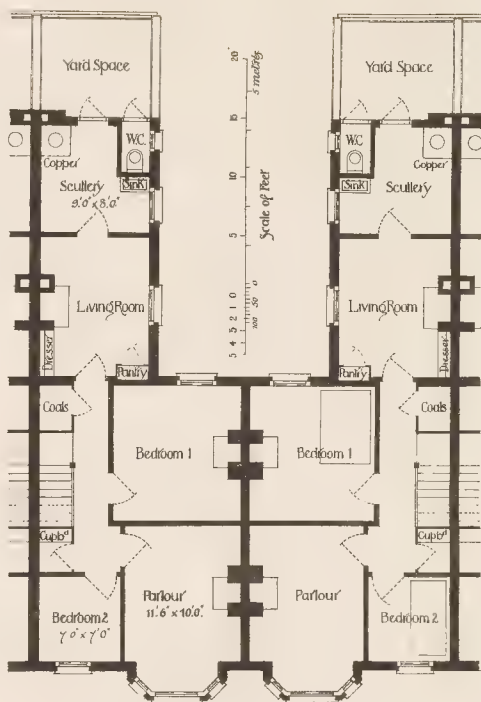


George H. Cornfield
Henry J. Potter } 19 London and Alder, S.E.

H.1

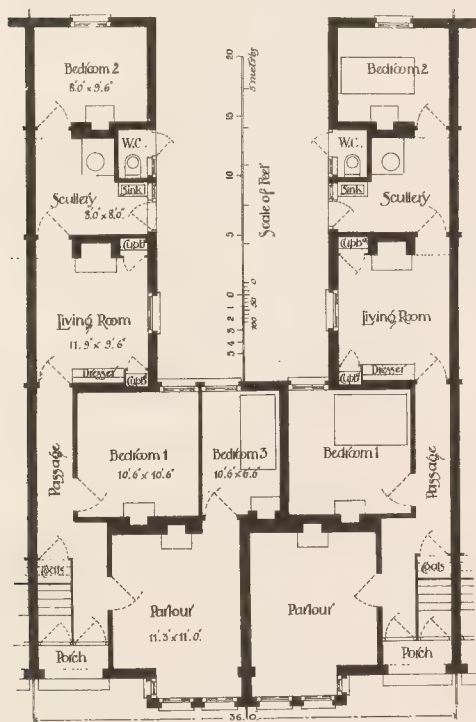


Ground Floor Plan

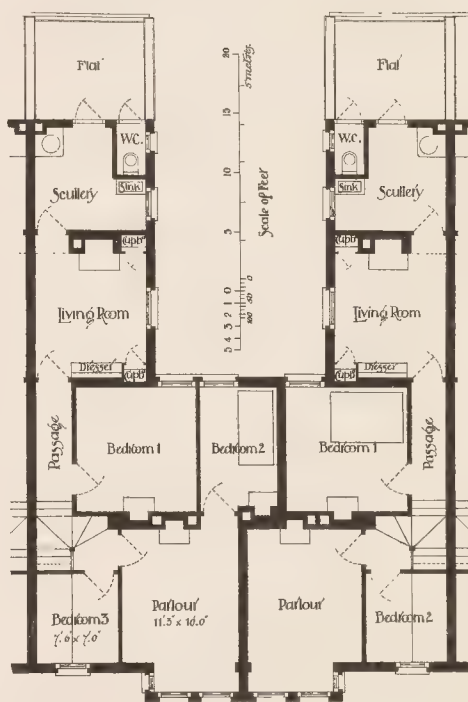


First Floor Plan

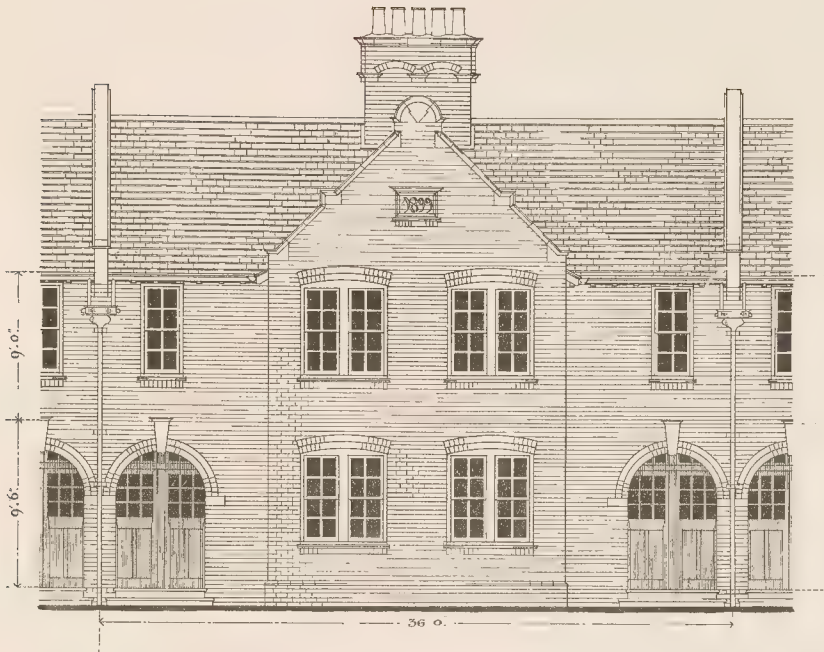
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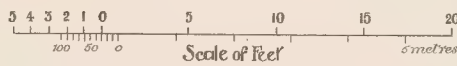
Ground Floor Plan



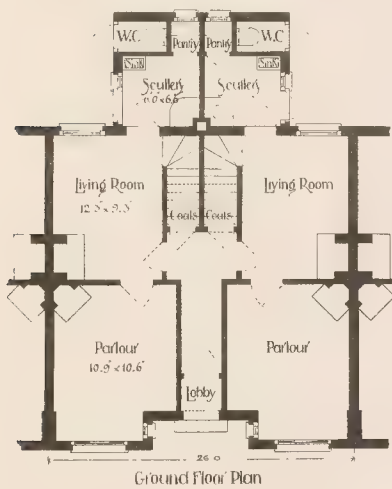
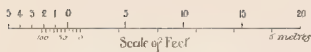
First Floor Plan



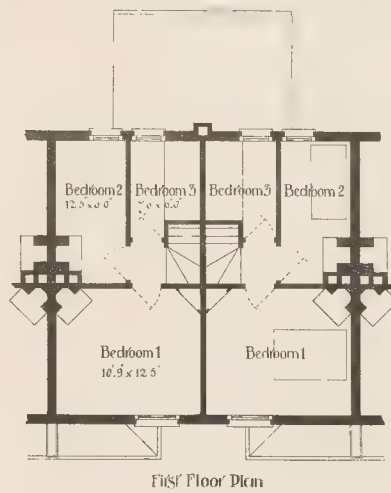
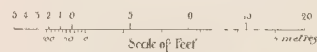
ELEVATION H.2



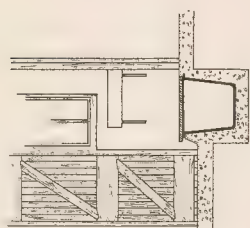
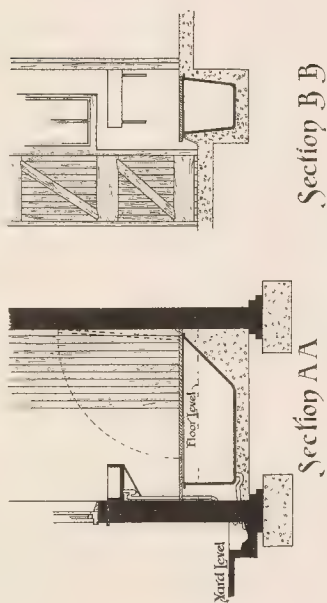
Sydney & Crossfield
Henry & Poles } 19 Lincoln Lane, E.C.4.



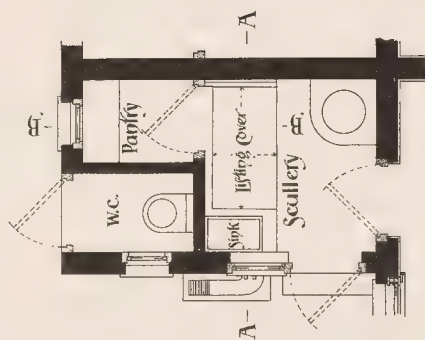
J.



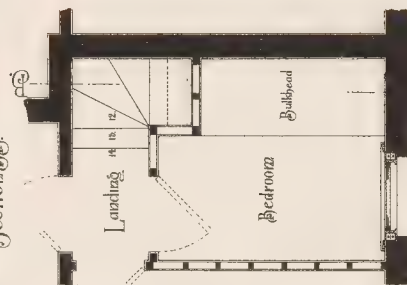
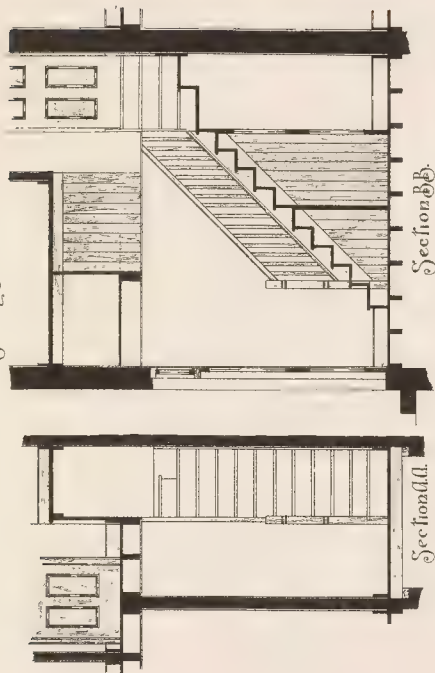
Detail showing arrangement of Bath in Sculley



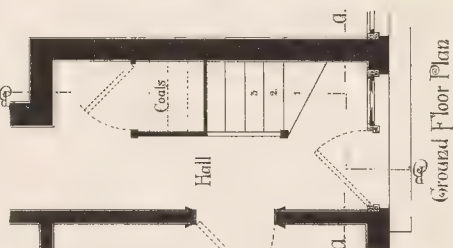
Plan.



Detail of Stairs
Showing Bulkhead etc.



First Floor

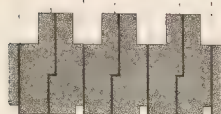


Scale of Feet

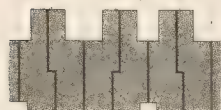
meters

} 19 Lincoln Ave. W. Va.
 }
 Henry J. Peter-
 Spring, W. Va.

Block Plans



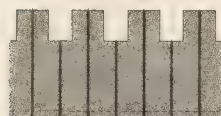
A.5
(elephantine)



A.5



A.2

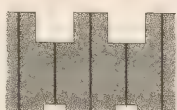


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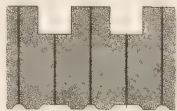
Scale of Feet
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metres



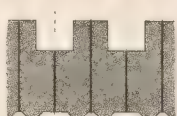
B.4



B.3



B.2



B.1

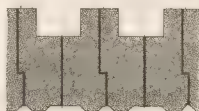
Block Plans



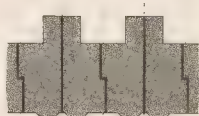
C.4



C.3



C.2

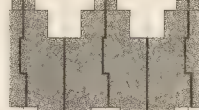


C.1

Scale of Feet
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metres



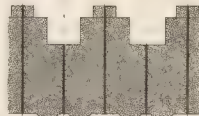
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D.2

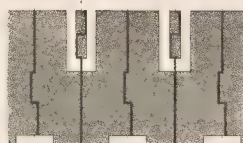


D.4

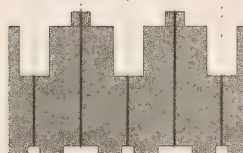


D.1

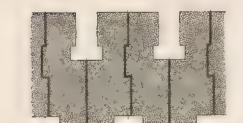
Block Plans



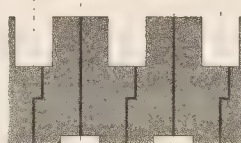
E.3



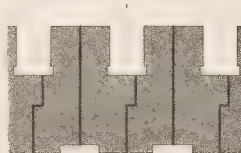
E.1



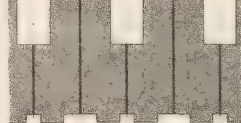
D.5



G.4



G.3



G.2

Scale of Feet
0 10 20 30 40
metres

Ernest H. Greyfield }
Henry J. Potter } 19 Lincoln Lane, Littleton, CO.

APPENDIX.

APPENDIX.

ABSTRACT FROM THE LOCAL GOVERNMENT BOARD MODEL BYELAWS.

THE following abstract contains those clauses which govern the erection of small houses similar to those illustrated. The building regulations generally adopted by the sanitary authorities throughout the country are based on these byelaws.

Of most of the clauses summaries only are given; when, however, it has been considered expedient, the clause is given in full.

It should be noted, however, that the byelaws, and the method of enforcing them, differ slightly in nearly every locality.

In cases where the building regulations in force within the Metropolitan area differ from those generally adopted in Urban districts, the divergence is noted, with a reference to the section of the London Building Act, 1894.

The model byelaws with respect to the construction of new streets and sewers are omitted, as they cannot be applied without regard to the special circumstances of different localities.

INTERPRETATION OF TERMS.

In the construction of these byelaws the following words have the meanings assigned to them, that is to say -

Base applied to a wall means the under side of the course immediately above the footings.

Topmost Storey means the uppermost storey in a building, whether constructed wholly or partly in the roof or not, and whether used or constructed or adapted for human habitation or not.

Party Wall means—

(a) A wall forming part of a building, and being used or constructed to be used in any part of the height or length of such wall for separation of adjoining buildings belonging to different owners, or occupied, or constructed, or adapted to be occupied by different persons; or

(b) A wall forming part of a building, and standing in any part of the length of such wall, to a greater extent than the projection of the footings on one side on grounds of different owners.

External Wall means an outer wall of a building not being a party wall, even though adjoining to a wall of another building.

Habitable Room means a room constructed or adapted to be inhabited.

New Building.—For the purposes of this Act, the re-erecting of any building pulled down to or below the ground floor, or of any frame building of which only the framework is left down to the ground floor, or the conversion into a dwelling house of any building not originally constructed for human habitation, or the conversion into more than one dwelling house of a building originally constructed as one dwelling house only, shall be considered the erection of a new building.

¹ Public Health Act, 1875.

¹*Building* and *House* respectively includes the curtilage of a building or house wholly or partly erected under statutory authority.

Domestic Building means a dwelling house, or an office building, or other outbuilding appurtenant to a dwelling house, whether attached thereto or not, or a shop, or any other building not being a public building, or of the warehouse class.

Dwelling House means a building used, or constructed, or adapted to be used wholly or principally for human habitation.

¹*Owner* means the person for the time being receiving the rack rent of the premises in connection with which the word is used, whether on his own account, or as agent, or trustee for any other person, or who would so receive the same if such premises were let at a rack rent.

Width, applied to a new street, means the whole extent of space intended to be used, or laid out so as to admit of being used as a public way, exclusive of any steps or projections therein, and measured at right angles to the course or direction, or intended course or direction of such street.

¹*Street* includes any highway, and any public bridge, and any road, lane, footway, square, court, alley, or passage, whether a thoroughfare or not, and whether or not there are houses in such street.

²*Drain* means any drain of, and used for, the drainage of one building only, or premises within the same curtilage, and made merely for the purpose of communicating therefrom with a cesspool or other like receptacle for drainage, or with a sewer into which the drainage of two or more buildings or premises occupied by different persons is conveyed.

²*Sewer* includes sewers and drains of every description, except drains to which the word "drain" interpreted as aforesaid applies, and except drains vested in or under the control of any authority having the management of roads, and not being a local authority under this Act.

Site. A person who shall erect a new building shall not construct any foundation of such building upon any site which shall have been filled up with any material impregnated with faecal matter or impregnated with any animal or vegetable matter, or upon which any such matter may have been deposited, unless and until such matter shall have been properly removed, by excavation or otherwise, from such site.

Under-pavings. The site of every new domestic building must be covered with 6" of cement concrete, or must be asphalted; in the case of low-lying sites special precautions must be taken for the avoidance of damp.

Materials for External, Party and Cross Walls. New buildings must be enclosed with walls of brick, stone, or other hard or incombustible materials, properly bonded and solidly put together with mortar, cement, or other suitable material—(a) with mortar compounded of good lime and clean, sharp sand; or (b) with good cement; or (c) with good cement mixed with clean, sharp sand.

Half Timber Walls. Under certain conditions half timber walls may be used for dwelling houses, but walls of this description are not permissible in terraces or blocks of more than 3 houses, each group of which shall be distant not less than 15' . 0" from any adjoining building not in the same curtilage or forming part of the same block.

Hollow Walls.³ The cavity between the walls shall not exceed 3". The inner and outer parts of walls must be tied together with approved ties, which shall be built in at distances not exceeding 3' . 0" horizontally and 18" vertically.

¹ Public Health (London) Act, 1891.

² Public Health Act, 1875.

³ Compare with Schedule I., London Building Act, 1894.

The thickness of each part of the wall shall be not less than $4\frac{1}{2}$ " ; the thickness of the two together shall be not less than the thickness prescribed for a solid wall of the same dimensions and belonging to the same class of building.

All woodwork forming the heads of openings or other similar structure, which may be built in the walls so as to extend across the intervening cavity, shall be covered on the upper side with sheet lead or other suitable impervious material.

Every person who shall erect a new building shall construct every wall of such building so as to rest upon proper footings. **Footings to Walls.**

He shall cause the projection at the widest part of the footings of every wall, on each side of such wall, to be at least equal to one half of the thickness of such wall at its base, unless an adjoining wall interferes, in which case the projection may be omitted where that wall adjoins.

He shall also cause the diminution of the footings to be in regular offsets, or in one offset at the top of the footings, and he shall cause the height from the bottom of the footings to the base of the wall to be at least equal to two-thirds of the thickness of the wall at its base.

Walls must rest on a sufficient foundation of concrete or upon some solid and sufficient substructure as a foundation. **Foundations.**

A damp-proof course of sheet lead, asphalte, slates laid in cement, or other durable material impervious to moisture, must be laid beneath the level of the lowest timbers, and at a height of not less than 6" above the surface of the ground adjoining. **Damp-proof Course.**

When the floor of the lowest storey is below the level of the external ground immediately adjoining, the wall enclosing such storey shall be built hollow, with a cavity extending from the base to a height of 6" above the ground, or shall have a vertical damp-proof course of impervious materials. **Vertical Damp-proof Course.**

(i.) The heights of storeys are measured as follows :—(a) The height of the topmost storey shall be measured from the surface of the floor up to the level of the underside of the tie of the roof, or if there is no tie, then up to half the vertical height of the rafters or other roof supports (b) The height of every other storey other than a topmost storey shall be measured from the surface of the floor up to the level of the surface of the floor next above it. **Modes of Measurement.**

¹ Rooms shall not be less than 8' 6" high in the clear. Bedrooms, if attics, shall in no part be less than 5' 0" high, and for two-thirds of their floor area not less than 9' 0" high in the clear. **Height of Rooms.**

(ii.) The height of the walls is measured from the top of the footings to the highest part of the wall, or in the case of a gable to half the height of the same. **Height of Walls.**

(iii.) Walls shall be deemed to be divided into distinct lengths by return walls. The length of a wall shall be measured from the centre of one return wall to the centre of another, provided that the return walls are external walls, party walls, or cross walls, of the thickness prescribed by the byelaws, and are bonded into the walls so deemed to be divided. A wall shall not for the purpose of this rule be deemed a cross wall unless it is carried up to the top of the topmost storey, and unless in each storey the aggregate extent of the vertical faces or elevations of all the recesses and that of all the openings therein, taken together, shall not exceed one-half of the whole extent of the vertical face or elevation of the wall in such storey. **Length of Walls.** **Cross Walls.**

The minimum thickness for external and party walls is 9", providing (1) the wall does not exceed 25' . 0" in height ; (2) does not exceed 30' . 0" in length, and does not comprise more than 2 storeys : if the wall exceeds 30' . 0" in length, or comprises more than 2 storeys, it shall be $13\frac{1}{2}$ " thick below the topmost storey, and 9" for the rest of its height : if the wall exceeds 25' . 0", **Thickness of Party and External Walls.**

¹ Compare with Section 70, Part VI., London Building Act, 1894.

but does not exceed 30' . 0" in height, it shall be 13½" below the topmost storey, and 9" thick for the rest of its height.

Thickness of Cross Walls.

The thickness of a cross wall shall be at least two-thirds the thickness of that prescribed for a party or external wall of the same height and length, and belonging to the same class of building, and shall in no case be less than 9" thick.

Walls not built of Bricks.

The thickness of any wall built of stone, or other hard, incombustible materials, not laid in horizontal beds, must be one-third greater than that prescribed for a wall of the same dimensions, built of bricks, etc., laid in horizontal courses.

Openings in External Walls.

If openings are left in external walls exceeding one-half of the vertical elevation of the wall in any storey, sufficient brick piers or other incombustible supports must be provided to carry the superstructure. In the case of 2 walls at the corner of a street the supports must be so disposed to come within 3' . 0" of the angle, or a sufficient support must be placed under the angle made by the walls.

Woodwork in External Walls.

¹ All woodwork in external walls, excepting any bressummer or any storey post under a bressummer, or any door or window-frame of a shop, must be set back in reveals of at least 4" from the outer face of the walls.

Parapets to External Walls.

Such part of the external wall of any new building exceeding 30' . 0" in height as is within a distance of 15' . 0" from any other building, must be carried up so as to form a parapet of 1' . 0" at least above the highest part of any roof or gutter which adjoins the same at least 9" thick.

Parapets to Party Walls.

Every party wall must be carried up at least 9" thick above the roof flat or gutter immediately adjoining for a height of 15", measured at right angles to the pitch of the roof, or above the highest part of such flat or gutter. When there is any erection of combustible materials fixed on the roof within 4' . 0" of a party wall the wall must be raised 12" higher, and wider on each side than the erection extends. Where the eaves of a building project beyond the face of the wall the party wall must be corbelled out to the full extent of the projection 9" in thickness, and raised above the same to a height of at least 15" measured at right angles to the pitch of the roof.

Copings to Parapets.

Parapet walls must be properly coped to prevent water running down sides of walls or soaking into the same.

Openings in Party Walls. Recesses in External and Party Walls.

² No openings shall be made or left in any party wall of a new building.

No recesses shall be made in external or party walls:—

(a) Unless the back of such recess be at least 9" thick.

(b) Unless a sufficient arch be turned in every storey over the same.

(c) Unless in each storey the aggregate area of the recesses is less than one-half of the vertical superficies of the wall.

(d) Unless the side of any recess nearest to the inner face of any return or external wall is distant at least 13½" therefrom.

Chases in Walls.

No chase shall be wider than 14" or more than 4½" deep from the face of the wall, or shall leave less than 9" thickness at the back or opposite side thereof, or which shall be within 13½" from any other chase, or within 7' . 0" from any other chase on the same side of such wall, or within 13½" of any return wall.

Timber in Party Walls. Ends of Beams in Party Walls.

No bond timber, block, plate, or plug of wood shall be built into a party wall.

No bressummer, beam, or joist shall be built into a party wall, unless the end of such bressummer, beam, or joist be at least 4½" from the centre of such wall.

¹ Compare with Section 55, Part VI., London Building Act, 1894.

² Compare with Section 77, Part VI., London Building Act, 1894.

Girders must have a bearing on a sufficient template of stone, iron, terra-cotta, or vitrified stoneware of the full breadth of the girder. Girders on
Templates.

¹ Bressummers must have a bearing of at least 4" in the direction of their length at each end on a sufficient pier, storey post, or iron stanchion, etc., fixed on solid foundations, and such other supports as may be necessary to carry the superstructure. Bearing of
Bressum-
mers.

The space between joists and studs in any partition wall must be filled in with brickwork, concrete, pugging, or other incombustible material, at every floor and ceiling. Beam
Filling, &c.

Chimneys, when carried down to the ground, must have footings and foundations similar to the walls in which they occur. Chimneys, if corbelled out on upper storeys, must be carried on sufficient corbels of brick, stone, or other incombustible materials, provided they do not project from the walls more than the thickness of the same measured immediately below the corbel. Chimney
Breasts.

A flue must be rendered, or pargeted, as the work is carried up, unless it be lined with fireproof piping of stoneware at least 1" thick, and unless the spandril angles be filled in solid with incombustible materials. Flues to be
Pargeted.

² Flues must be enclosed with brickwork at least $4\frac{1}{2}$ " thick; and the back or outside of any flue, when not forming the face of an outside wall, and when less than 9" thick, shall be properly rendered. Brickwork
about Flues.

Every chimney opening must have a sufficient arch of brick or stone or a bar of wrought iron built over the opening to support the superincumbent brickwork, if the breast projects more than $4\frac{1}{2}$ " from the face of the wall, and the jamb on either side is less than $13\frac{1}{2}$ " in width. The abutments must be tied in by sufficient bars of wrought iron 18" longer than the opening, turned up and down at the ends, and built into the jambs on each side. The jambs of every chimney opening must be at least 9" wide on each side of same. Chimney
Openings,
Jambs, etc.

Hearths shall extend 6" wider than the chimney opening on either side, and project 18" in front of chimney breasts. They must be of incombustible materials 7" thick, and on upper floors be carried on a brick trimmer arch or upon stone or iron bearers; on the lowest storey they may be bedded on the solid ground. Hearths.

Chimney backs in a party wall of any room which may be used as a kitchen must be at least 9" thick to a height of 6'. 0" above such chimney opening. The back of every other chimney opening from the hearth up to a height of 12" above such opening must be at least $4\frac{1}{2}$ " thick, if in an external wall, and 9" thick if elsewhere. Chimney
Backs.

When the course of a flue inclines more than 45° from the perpendicular, the upper side of same must be at least 9" thick. Brickwork
about
Certain
Flues.

When flues are carried on arches the latter must be supported by wrought iron bars of adequate strength built in $4\frac{1}{2}$ " at each end, one bar to be provided for every 9" of the width of the soffit of such arch. Chimneys on
Arches.

³ Chimney stacks must be carried up at least 3'. 0" above the highest part of roof, flat, or gutter immediately adjoining same, enclosed with not less than $4\frac{1}{2}$ " of brick or stonework. Minimum
Height of
Chimneys.

No chimney shall be carried up above the roof to a greater height than six times its least width, measured from the highest point in the line of junction with such roof, flat, or gutter, unless it is attached to another shaft, or otherwise securely stayed. Maximum
Height of
Chimneys.

Metal holdfasts may not be fixed nearer than 2" to the inside of any flue or chimney opening. Metal Hold-
fasts near
Flues.

¹ Compare with Section 56, Part IV., London Building Act, 1894.

² Compare with Section 64, Part VI., London Building Act, 1894.

Timber near Flues.

No woodwork shall be placed (a) nearer than 9" to the inside of any flue or chimney opening; (b) under any chimney opening within 15" from the upper surface of the hearth; (c) no wood plug shall be fixed within 6" of the inside of any flue and chimney opening.

When any woodwork comes within 2" of the face of any flue which is enclosed by $4\frac{1}{2}$ " work, the latter must be properly rendered externally.

Openings in Flues.

No opening shall be left in a flue for ventilation or other purpose, unless the same is at least 9" distant from any timber or other combustible substance.

Smoke Pipes.

No smoke pipe shall be fixed within 9" of any combustible material.

Roofs covered with Incombustible Materials.

All roofs, flats, turrets, dormers, lanterns, skylights, gutters, shoots, or other erections on roofs to be covered externally with slates, tiles, metal, or other incombustible materials, excepting as regards any door, door frame, window or window frames, of any such skylights, turrets, dormers, etc. All roofs must be constructed so that the rain-water is received into suitable gutters, shoots, etc., of incombustible materials.

Air Space about Buildings.

¹ Every person who shall erect a new domestic building shall provide in front of such building an open space, which shall be free from any erection thereon above the level of the ground, except any portico, porch, step, or other like projection from such building, or any gate, fence, or walls, not exceeding 7'. 0" in height, and which, measured to the boundary of any lands or premises immediately opposite, or to the opposite side of any street which such building may front, shall, throughout the whole line of frontage of such building, extend to a distance of 24'. 0" at the least; such distance being measured in every case at right angles to the external face of any wall of such building which shall front or abut on such open space.

A person who shall make any alteration in or addition to such building, shall not, by such alteration or addition, diminish the extent of open space provided in pursuance of this byelaw in connection with such building.

Space at Rear of Buildings.

¹ Every person who shall erect a new domestic building shall provide in the rear of such building an open space exclusively belonging to such building, and of an aggregate extent of not less than 150 square feet,² and free from any erection thereon above the level of the ground, except a water-closet, earth-closet, or privy and ashpit.

He shall cause such open space to extend, laterally, throughout the entire width of such building, and he shall cause the distance across such open space from every part of such building to the boundary of any lands or premises immediately opposite, or adjoining the site of such building, to be not less in any case than 10'. 0"

If the height of such building be 15'. 0" he shall cause such distance to be 15'. 0" at the least.

If the height of such building be 25'. 0" he shall cause such distance to be 20'. 0" at the least. If the height of such building be 35'. 0", or exceed 35'. 0", he shall cause such distance to be 25'. 0" at the least.

A person who shall make any alteration in or addition to such building shall not, by such alteration or addition, diminish the aggregate extent of open space provided in pursuance of this byelaw in connection with such building, or in any other respect fail to comply with any provision of this byelaw.

For the purposes of this byelaw the height of such building shall be measured upwards from the level of the ground over which such open space shall extend, to the level of half the vertical height of the roof, or to the top of the parapet, whichever may be the higher.

Ventilation of Space under Lowest Floor.

A space of at least 3" must be left between top of under paving and bottom of joist to a boarded floor, which space must be sufficiently ventilated with air bricks.

¹ Compare with Sections 39 to 46, Part V., London Building Act, 1894.

² In the cases of irregular corner sites this rule is usually relaxed, each case being dealt with on its merits.

A space of not less than 150 square feet must be paved with impervious pavement laid to proper falls, the paving to adjoin the rear or side wall of house. **Paving of Yards.**

¹ Every habitable room shall have a window area of at least one-tenth of the floor area of such room, arranged so that a portion equal to not less than one-twentieth of the floor area can be opened directly into the open air, such opening to extend to the top of the window. **Size of Windows.**

Every habitable room not provided with a fireplace and flue must be provided with an air shaft or aperture, with an unobstructed sectional area of not less than 100 square inches. **Rooms without Fireplaces.**

WITH RESPECT TO THE DRAINAGE OF BUILDINGS.

A site should be drained whenever the dampness renders such precaution necessary. No surface water drain shall connect with a foul drain, cesspool, or sewer, without being trapped and ventilated. **Subsoil Drainage.**

The lowest storey shall be kept above the level of the sewer, for the purpose of providing effectual drainage into the upper half diameter of such sewer. **Lowest Storey above Sewer.**

Drain pipes (other than those used for surface drainage) must be of glazed stoneware, or other equally suitable material. **Drain Pipes.**

Foul drains must be not less than 4" in diameter, laid in a bed of concrete, with water-tight socketed or other suitable joints, to a uniform fall of not less than 1 in 40. **Size, etc., of Drains.**

Foul drains must be laid so as *not* to pass under any building except when any other alternative is impracticable. When passing under a building the drain shall be laid so that the pipes (top of) are at least one diameter thereof below the surface of the ground level, and the drain shall be laid in a straight length, embedded in concrete 6" all round, and ventilated at each end. Every inlet to a drain, not being an opening for the purpose of ventilation, must be trapped. **Trapped Inlets.**

Every drainage system must be provided with a suitable trap, to be fixed in the drain as near as possible to the sewer. **Disconnection of Drains.**

No right-angled junction, either vertical or horizontal, shall be made in a drain. Every junction between drains must be made obliquely in the direction of the flow of such drain. **Junction of Drains.**

Every drainage system must be constructed so as to comply with the following requirements: **Ventilation of Drains.**
Two untrapped openings must be provided, disposed in either one of the following ways, as circumstances may render the most suitable and effectual.

(a) One opening (the fresh air inlet), being at or near the ground level, shall be connected with the drain on the house side of the sewer interceptor (as near the same as practicable), by means of a suitable pipe shaft or disconnecting chamber. **Ventilation against the Flow of the Drain.**

The second opening (exhaust pipe) shall be connected with the head of the drain, or as far distant from the first opening as may be practicable. From this point a shaft shall be carried up to such a height as to effectually prevent foul air escaping into any building in the vicinity thereof, and in no case to be less than 10' . 0" high.

(b) When the foregoing arrangement is impracticable it may be reversed by placing the fresh air inlet at or near the head of the drain, and taking the exhaust pipe from the drain on the house side of the sewer interceptor as far away from the former opening as practicable. **Ventilation with the Flow of Drain.**

The before-mentioned openings must be finished with suitable gratings, so arranged as to secure a free passage of air through the shafts.

The shafts shall in all cases be of the same sectional area as the drain with which they communicate, and in no case less than 4". No bend or angle, except where unavoidable, shall be formed in the same.

¹ Compare with Section 70, Part VI., London Building Act, 1894.

Soil Pipes as Ventilators. A soil pipe may be used in either of the foregoing arrangements as a ventilator, provided it complies with the requirements of the byelaws as regards position, sectional area, construction, etc., laid down for such pipes.

Inlet to Drain within Buildings. No inlet to any drain shall be made within a building, except as may be necessary from the apparatus of a water-closet.

Ventilation of Soil Pipes. Soil pipes must be fixed outside buildings of a diameter of at least 4", and must be carried up without diminution of diameter to such a height as to form a safe outlet for sewer air.

No Trap at Foot of Soil Pipe. No trap shall be fixed between a soil pipe and the drains other than that connected with the water-closet apparatus.

Wastes to Discharge in the Open Air. Waste pipes from baths, lavatories, and sinks (not slop sinks), overflows from safes under baths or water-closets, etc., must be taken through the external wall and discharge into the open air over a channel leading to a trapped gully 18" distant.¹

The waste from a slop sink must conform to the rules which apply to soil pipes and water-closets.

Water-Closets and Earth-Closets. Water-closets and earth-closets in a building must be enclosed at least on one of their sides by an external wall.

Every water-closet and earth-closet must have a window at least 2' . 0" by 1' . 0" in the clear opening directly into the external air, and must also have a grating, air-shaft, or some other appliance in addition to the window, to promote constant ventilation.

Every water-closet must have separate flushing cistern of adequate capacity, which shall be arranged to supply the closet, so that no direct connection between water-closet apparatus and any other service pipe or cistern shall exist.

Container and D Traps prohibited. Every water-closet apparatus must have an approved basin of non-absorbent material. No "container" or D trap shall be fixed in connection with any water-closet apparatus.

Earth Closets. Earth-closets in connection with buildings must be provided with a receptacle of suitable construction and adequate capacity for dry earth or other deodorizing substance easily accessible. Suitable apparatus or means must be provided for supplying a sufficient quantity of dry earth or other deodorizing substance.

Earth closets with fixed receptacles must be constructed so as to be easily accessible for the purpose of removing the contents thereof.

The receptacle shall be constructed of non-absorbent materials, and shall not be sunk below level of ground, and shall be covered in.

Privies. Privies in connection with buildings shall not be constructed within a distance of 6' . 0" of a dwelling-house or public building or any other building used for trade, business, or manufacturing purposes.

Privies shall not be constructed within * feet of any well or stream used, or likely to be used, for drinking or domestic purposes.

Privies in connection with buildings shall be easily accessible for the purposes of cleansing, without necessitating the filth to be carried through any building.

Privies in connection with buildings must be ventilated by the provision of a sufficient opening as near to the top as possible communicating directly with the external air. The floor of every such privy shall be paved with non-absorbent materials, shall be raised 6" above the

¹ The channel pipe is not always insisted upon.

* This distance depends upon the nature of the subsoil.

external ground level immediately adjoining, and shall be laid with a fall towards the door of $\frac{1}{2}$ " to the foot.

Privies constructed with movable receptacles shall have the area of the floor immediately beneath the seat flagged or asphalted at a height of not less than 3" above the external ground level immediately adjoining the whole extent of each side of the space enclosed between the floor and the seat of privy, to be constructed with flagging, slate, or brickwork 9" thick, rendered in good cement or asphalted.

The seat aperture and space beneath shall be constructed of such dimensions as to admit of a movable receptacle for filth, not exceeding 2 cubic feet, being placed beneath such seat in the most convenient position.

The seat to be wholly or partly removable, as may be necessary for cleansing purposes.

Privies with fixed receptacles are subject to the same regulations as earth-closets, with similar receptacles; they shall not be constructed of a capacity exceeding 8 cubic feet.

No privy shall be connected with any drain.

Ashpits in connection with buildings shall not be constructed within a distance of 6' . 0" of Ashpits. a dwelling-house, etc., neither shall they be constructed near a well, stream, etc. They shall be easily accessible to allow the removal of contents. (See regulations as to privies.)

Ashpits in connection with a building shall be constructed of a sufficient capacity to contain the refuse, etc., which may accumulate upon the premises during a period of one week.

Ashpits in connection with a building shall be constructed of flagging, slate, or brickwork 9" thick, rendered inside with good cement or asphalted; the floor shall be raised 3" above external ground level immediately adjoining, and be flagged or asphalted; the ashpit shall be roofed in, ventilated, and fitted with a door to facilitate the easy removal of contents. No ashpit shall be connected with a drain.

Cesspools, so far as their proximity to wells, streams, dwellings, etc., and the facilities Cesspools. to be provided for cleansing, are subject to the same regulations as privies. Cesspools shall be constructed of good brickwork in cement, properly rendered inside with cement, with a backing of at least 9" of well puddled clay. Adequate means of ventilation must be provided. No cesspool shall be connected with any sewer.

LONDON COUNTY COUNCIL BYELAWS.

No house, building, or other erection shall be erected upon any site or portion of any site which shall have been filled up or covered with any material impregnated or mixed with any faecal, animal or vegetable matter, or which shall have been filled up or covered with dust, or slop, or other refuse or in or upon which any such matter or refuse shall have been deposited, unless and until such matter or refuse shall have been properly removed, by excavation or otherwise, from such site. Any holes caused by such excavation must, if not used for a basement or cellar, be filled in with hard brick or dry rubbish, or concrete or other suitable material to be approved by the District Surveyor. Foundations and Sites of Buildings.

The site of every house or building shall be covered with a layer of good concrete, at least 6" thick, and smoothed on the upper surface.

The foundations of the walls of every house or building shall be formed of a bed of good concrete, not less than 9" thick, and projecting at least 4" on each side of the lowest course of footings of such walls. If the site be upon a natural bed of gravel concrete may be omitted from the foundations of the walls, with the approval of the District Surveyor.

The concrete must be composed of clean gravel, broken hard brick, properly burnt ballast or other hard material to be approved by the District Surveyor, well mixed with freshly burnt lime or cement in the proportions of 1 of lime to 6, and 1 of cement to 8 of the other material.

Description and Quality of the Substances of Walls.

The external walls of every house, building, or other erection shall, except in the case of concrete buildings, be constructed of good, hard, sound, well-burnt bricks or stone.

Similar bricks shall be used in the portions of party and cross walls below the surface or level of the ground, and above the roof, including chimney stacks. Cutters or malms may be used in arches over recesses and openings in, or for facings of, external walls.

Stone used for the construction of walls must be free from vents, cracks, sandholes, and be laid on its natural bed. All brick and stone work shall be put together with good mortar or good cement.

The mortar to be used must be composed of freshly burned lime and clean, sharp sand or grit, without earthy matter, in the proportions of 1 of lime to 3 of sand or grit.

The cement to be used must be Portland cement, or other cement of equal quality, to be approved by the District Surveyor, mixed with clean, sharp sand or grit in proportions of 1 of cement to 4 of sand or grit.

Burnt ballast or broken brick may be substituted for sand or grit, provided such material be properly mixed with lime in a mortar mill.

Damp Proof Course.

Every wall of a house or building shall have a damp course composed of materials impervious to moisture, to be approved by the District Surveyor, extending throughout its whole thickness at the level of not less than 6" below the level of the lowest floor. Every external wall or inclosing wall of habitable rooms or their appurtenances or cellars which abuts against the earth shall be protected by materials impervious to moisture to the satisfaction of the District Surveyor.

Copings.

The top of every party wall and parapet wall shall be finished with one course of hard, well-burnt bricks set on edge in cement, or by a coping of any other waterproof and fire-resisting material, properly secured.

Concrete Walls.

Whenever concrete is used in the construction of walls the concrete shall be composed of Portland cement and of clean Thames or pit ballast, or gravel, or broken brick or stone, or furnace clinkers, with clean sand in the following proportions—viz., 1 part of Portland cement, 2 parts of clean sand, and 3 parts of the coarse material, which is to be broken up sufficiently small to pass through a 2" ring.

The proportions of the materials to be strictly observed, and to be ascertained by careful admeasurement; and the mixing, either by machine or hand, to be most carefully done with clean water, and if mixed by hand, the material to be turned over dry before the water is added.

The walls to be carried up regularly and in parallel frames of equal height, and the surface of the concrete filled in the frame to be left rough and uneven to form a key for the next frame of concrete.

The thicknesses of concrete walls to be equal at the least to the thicknesses for walls to be constructed of brickwork prescribed by the 12th section of the Metropolitan Building Act, 1855, and the first schedule referred to therein.

Such portions of concrete party walls and chimney stacks as are carried above the roofs of buildings to be rendered externally with Portland cement.

Description and Quality of the Substances of which Plastering is to be made.

All laths used for plastering to be sound laths free from sap, but iron or other incombustible laths, wire netting, or other suitable material to the satisfaction of the District Surveyor, may be used.

Plastering or coarse stuff shall be composed of lime and sand in the proportion of 1 of lime to 3 of sand, mixed with water and hair, but Portland cement, Keene's cement, Parian cement, Martin's cement, Selenitic cement, or other approved cement or Plaster-of-Paris, may also be used for plastering.

The lime to be used must be freshly burned lime.

The sand to be used must be clean, sharp sand, free from loam or earthy matter.

The hair to be used must be good and sound, and free from grease or dirt; 1 lb. of hair to be used to every 3 cubic feet of coarse stuff. Fibrous material to the satisfaction of the District Surveyor may be used instead of hair, and ground brick or furnace slag to the satisfaction of the District Surveyor may be used instead of sand.

The setting coat shall be composed of lime or cement mixed with clean washed sand or of cement only.

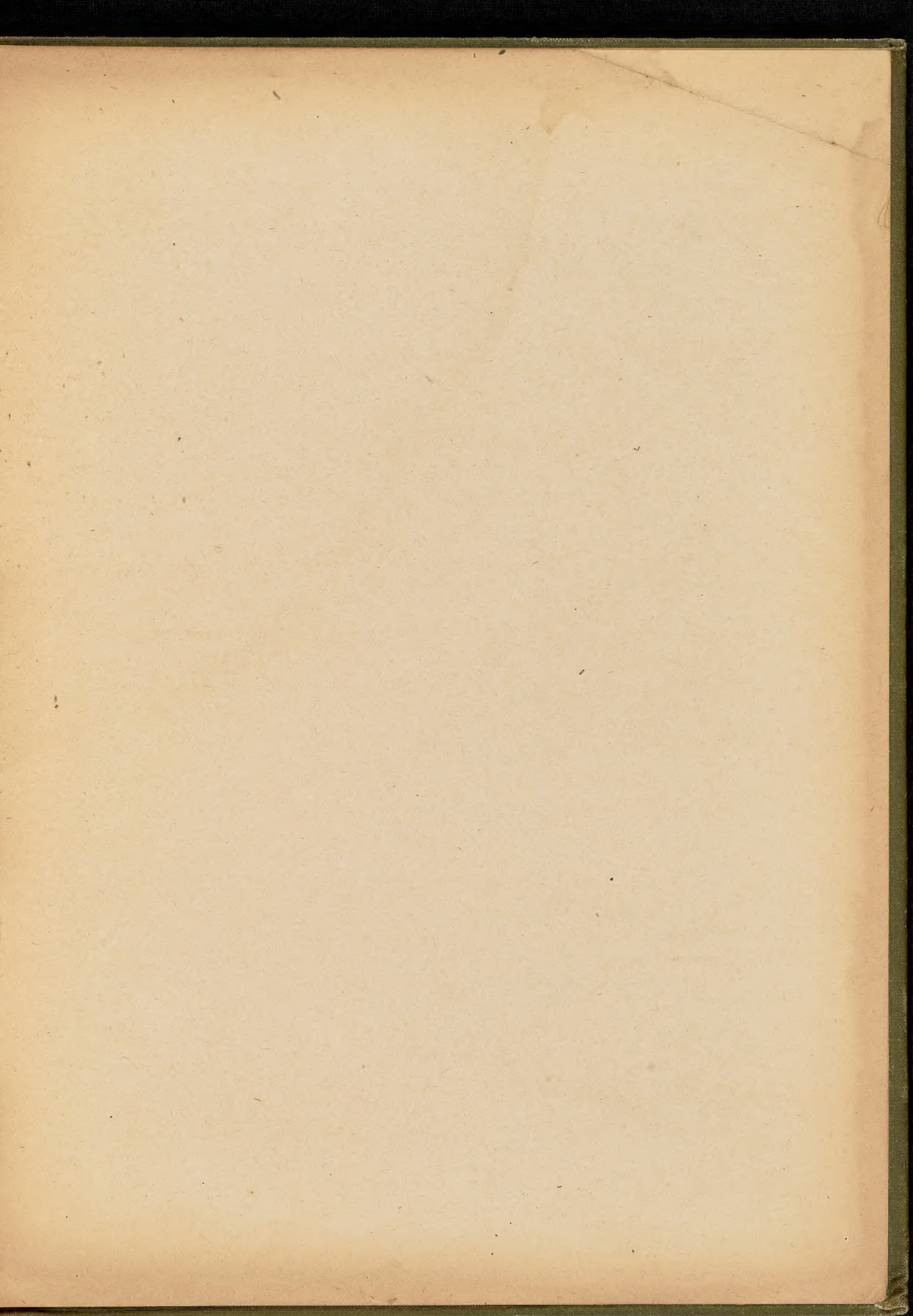
Clear water only is to be used in mixing the material.

The Portland cement to be used must weigh not less than 90 lbs. to the imperial bushel.

Fibrous slab or other slab plastering of sufficient thickness, and securely fixed, may be used on ceilings, partitions, and walls, to the satisfaction of the District Surveyor.

Any excavation made within a line drawn outside the site of a house, building, or other erection, and at a uniform distance therefrom of 3' . 0", shall not be filled up otherwise than with the natural soil, or with brick or dry rubbish or other suitable material, to be approved by the District Surveyor, not consisting of, nor impregnated or mixed with any faecal, animal, or vegetable matter, or with dust or slop or other refuse, and shall be properly rammed.

THE END.



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